# The Iron A

### A Review of the Hardware and Metal Trades.

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New York, Thursday, June 25, 1874.

ally different in every arrangement from any rods from the pumps, which are placed in the serving both engines. The steam is to be addisside packing ring is to be made of good cast together. The combined area of each pair of

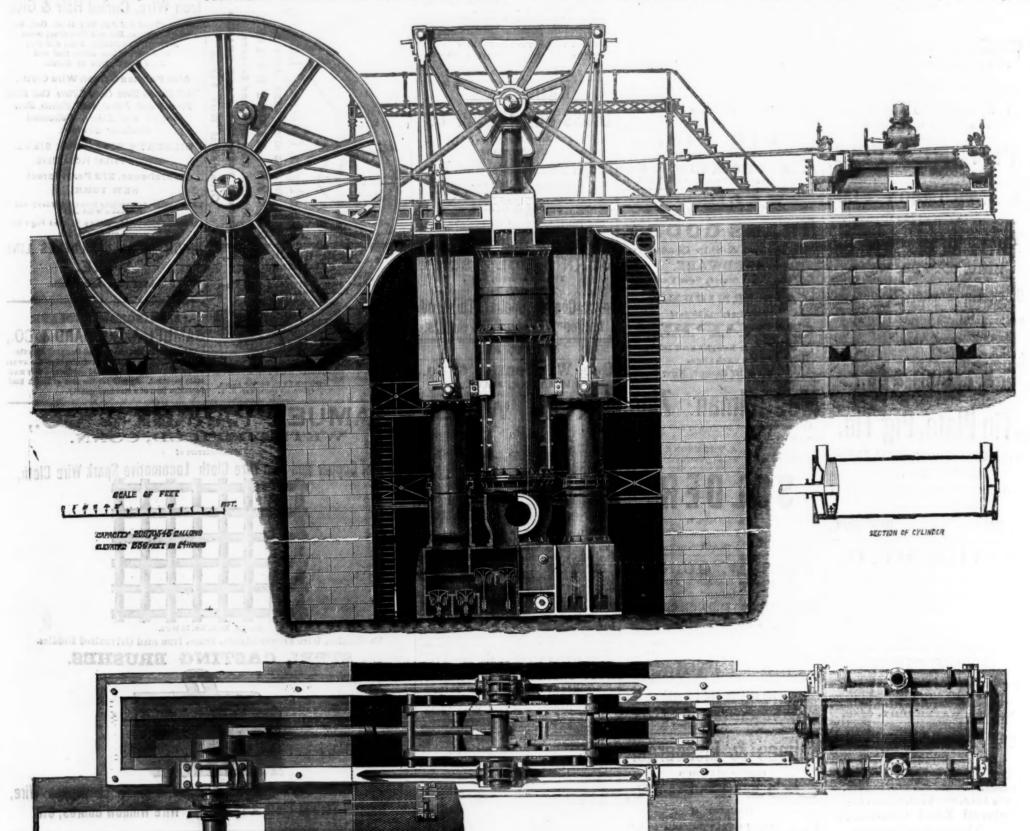
Pumping Engine for the Pittsburgh above the top of the bed plate; between these is short, and the leverage of the pump is long; with double shells, the inside shell to be 11/4 in. packing rings are ground is 2 in. thick. The For some time past there has been ample evidence afforded that the rapid growth of Pitts
gular beam." The plumber blocks in which the dence afforded that the rapid growth of Pitts
dence afforded that the rapid growth of Pitts
gular beam." The plumber blocks in which the dence afforded that the rapid growth of Pitts
in. thick, and uniting the two shells. burgh was placing a demand on the existing from center of the fly-wheel shaft, and 9 ft. creases, and thus helps to raise the other plunisfy. New water works are, therefore, in pro- lower wrist pin of the quadrant is attached to the inventor. cess of construction, and the pumping will be the connecting rods from the cylinder and fly-

two, and connected by the proper rods, is placed, as the pressure is diminished the leverage of thick, concave; the outside shell neatly turned piston rod is 10 in. in diameter, the end of the as called by the invertor, a quadrant or "trian- the pump rod diminishes, until at half the lever- and finished to 11/2 in. thick, convex; the two rod, which is fitted into the piston head, being

The piston will have three composition pack- with the main rod.

will remain an equal number of square inches

means of water supply which it could not sat- 1 15-16 in. above the top of the bed plate. The ger. These are the main features claimed by lng rings made of eight parts new copper and The steam and exhaust valves are what is one part new tin; the rings to be filled in the known as balance poppet valves, constructed so The engines have two horizontal steam cylin- usual manner with Babbitt metal. Each ring that they can be lifted from their seats through done by perhaps one of the most remarkable wheel, and vibrates horizontally; to the two ders connected with one shaft by two cranks is 21/4 in. wide, the three rings making 71/4 in. the upper openings in the valve chamters, each engines everused for such a purpose, and essen- upper wrist pins are attached the connecting fitted at right angles, one fly wheel and shaft width of face, and I in. and 11/4 in. thick. The pair of valves, with their wings, being cast



engine and pumps, and plan of the engine.

Theengine is being built by Andrew Hartupee, genter of the plummer blocks being 31/2 in. est pressure the leverage of the lower wrist pin 3 m. wide. The cylinder heads will be cast 16 in. The flange of the head on which the

ar.

norizontal engine with which we are acquainted. pump well below the bed plate, and are distant mitted into the cylinders at from 80 lb. to 100 iron 71/2 in. which we are acquainted. pump well below the bed plate, and are distant mitted into the cylinders at from 80 lb. to 100 iron 71/2 in. which we are acquainted. bollers, foundations, or house, but including aid of the steam or fly-wheel, the weight being to pump something over 41,000,000 gallons to forcing the water to the reservoir. The inventor ate four single-acting graduating plunger static head of 356 ft. The diameter of the rising pressure, and to cut off at from one-fourth to 2700 ft. It will be seen from the engraving that stroke, at this point the leverage of the lower and at the other end, 62 ft. 41/2 in. distant from at a maximum, and that on the up stroke at a minimum. Thus when the steam is at its greater to center, is placed the fly-wheel, the minimum. Thus when the steam is at its greater to center, is placed the fly-wheel, the minimum. Thus when the steam is at its greater to center, is placed the fly-wheel, the minimum. Thus when the steam is at its greater to center, is placed the fly-wheel, the minimum. Thus when the steam is at its greater to center, is placed the fly-wheel, the minimum. Thus when the steam is at its greater to center, is placed the fly-wheel, the minimum. Thus when the steam is at its greater to center, is placed the fly-wheel, the minimum. Thus when the steam is at its greater to center, is placed the fly-wheel, the minimum is a flat of the up stroke at a maximum is at its greater to center, is placed the fly-wheel, the minimum is a flat of the up stroke at a minimum is a flat of the up

Our illustrations represent an elevation of the horizontally from center to center 13 ft. 2 in., lb. pressure to the square inch, following the rings are set out with eighteen elliptic steel lower valves being 10 in., and the upper valves and have a stroke of 11 ft. Counter weights are placed on the pump rods of sufficient weight are placed on the pump rods of sufficient weight are placed on the pump rods of sufficient weight are placed on the pump rods of sufficient weight are placed on the pump rods of sufficient weight are placed on the pump rods of sufficient weight are placed on the pump rods of sufficient weights. The springs are to be 1-32 valves has a combined area of 235 square inches. Pittsburgh; the contract price, not including to force the water to the reservoir without the for the stroke, and condensed in narrower than the packing rings, and forged the upper valves being 12% in., and the lower either by a jet or surface condenser, as may be and finished to a uniform pattern, so that each valves 12 to in diameter. The valve stems are erection, is \$423,550. The engine is estimated raised by the steam and allowed to fall, thus hereafter determined. The engines will oper-spring may bear equally against the packing made of steel, and 1% in. in diameter. The The junk ring or follower is to be 1% | side pipes for the admission and exhaust are Hiland avenue reservoir in 24 hours, under a proposes to use steam of from 80 to 100 lb. pumps, two pumps being connected with each in thick when finished, ground on to the piston made with expansion joints, and the nozzles of steam engine, and working vertically. Nothing head and packing rings, and secured with the cylinder and valve chambers have an area main is not yet determined on, but a 50 in. main one-fifth of the stroke. The idea of the inventor has been talked of; the length will be about one-fifth of the stroke. The idea of the inventor will give a better idea of the importance of this eighteen boits 1% in. in diameter, and chased in the lathe; the nuts being finished and coun. The flanges of the valve chambers are finished. work than the dimensions of the machinery. in the lathe; the nuts being finished and coun. The flanges of the valve chambers are finished. The steam cylinders will have a stroke of 14 tersunk in the follower. The piston head 2 in thick, and the flanges of the cylinder in the lathe; the nuts being finished and coun- The flanges of the valve chambers are finished at one end of a long bed plate to the right is wrist pin, is short compared to what it will be ft., and will be 64 in. in diameter. The walls is cast with double shells, each shell nozzles on which they are bolted are finished of the cylinders will have a thickness when finwhich is 136 in. above the top of the bed plate, the wrist pin that has made its down stroke is ished of 2% in., where the ing the two shells and center boss of piston both for the exhaust and admission of steam. [Continued on page 94.]

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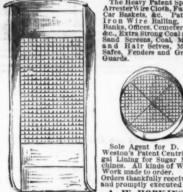


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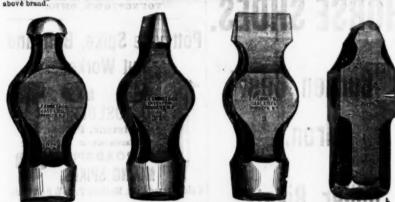
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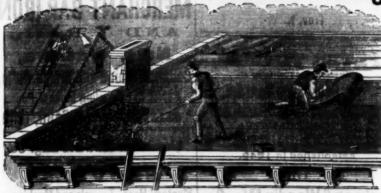


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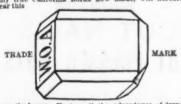
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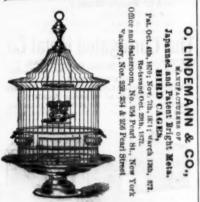
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#### Lead and its Preparation.

BY EDWARD J HALLOCK, A. M.

Lead ores are found abundantly in all parts of the world, and not being difficult to work, we may suppose that lead was used at a very early date

ORES OF LEAD.

In nature lead occurs in many different forms; ts compound with sulphur, known as Galena, s, however, the one generally employed for btaining the metal. It contains, when pure, 86.6 per cent. of lead, the remaining 13.4 per cent. being sulphur. It is easily recognized by its lead gray color, metallic luster, and cubical crystals. Its specific gravity is about the same as iron, 7.2 to 7.7; and, with the exception of cinnabar, it is the heaviest of the ordinary min-In hardness it resembles rock salt, is scratched by a copper coin, but not scratched by the nail. Galena always contains more or less silver, the smount varying from 0.02 to 3 per cent.; the quantity must be determined by upellation, no external characters serving to distinguish the kinds that contain much, from those which contain but little. Galena is soluble in nitric acid, fuses on charcoal before the blowpipe, emiting sulphurous fumes and yielding a globule of metallic lead. Clausthalite is a compound of lead with sel-

enium, similar to the above, but much rarer, being found only in the Harz, and in Saxony Germany, and a few places in Spain and South Cerussite, or native carbonate of ead, is a valuable ore found in Masssachusetts Pennsylvania, Virginia and many Northwestern States. It contains about 77.5 per cent. me allic lead, and has a white, gray, or grayish-black color, with an adamantine lustre inclining to esinous and sometimes pearly. The remaining ores of lead possess little value in the arts. Some, however, are remarkable for beauty of colors and crysta'line form. Crocoite, or native chromate of lead, has a bright hyacinth red color, with adamantine, vitreous lustre, is always found in prismatic crystals, which are very brittle. It is easily dissolved in acids, and in hydrochloric acid gives a green solution and crystallized needles of chloride of lead. With a salt of phosphorus it gives an emerald green bead in both flames of the blow pipe. Angle site is a native sulphate of lead having a white color, and is found either in prismatic crystals or lamellar masses. Pyromorphite, or native phosphate of lead, occurs in beautifully colored green, yellow and brown crystals, in the Perkiomen lead mine, near Philadelphia, and at Phœnixville; also in New York, a mile south of Sing Sing; in Davison county, N. C., and a few other localities. Lead is also found in combination with oxygen as minium, with areenic acid as mimetite, with tungstic acid as stobzite, and with molybdic acid as wulfenite.

REDUCTION FROM THE ORE. There are several different methods employed for reducing the ores of lead, in some of which a reverberatory furnace is made use of, while in others some modification of the blast furnace comes in play; but, generally, lead made in a blast furnace is hard and poor; but the lat ter must always be employed if the ores are very

When a reverberatory furnace is employed, the ed is about 8 ft. by 10, formed of old slags, and well depressed at one side of the center, and at the lowest part is a taphole for running off the metal. Aton of ore is operated upon at once. It is usually mixed with 1-30 of lime, unless the ore itself contains enough earthy matters to flux well together. After calcining the ore for about two hours rich slags or skimmings of former workings are thrown in. The charge is turned and rabbled to bring it into contact with the air, whereby portions of the sulphide of lead are converted into sulphate and oxide. These two compounds seem to be capable of reacting upon fresh portions of galena in such a manner as to produce sulphurous acids and metallic lead.

 ${}^{2}$  Pb O + PbS = SO<sub>2</sub> + 3 Pb, and Pb SO<sub>4</sub> + PbS =  ${}^{2}$  SO<sub>4</sub> + 2 Pb

In order to effect the latter part of the operation, the damper is raised and furnace closed so as to raise the temperature to bright redness. At this time effervescence takes place from the evolution of sulphurous acid, and the lead flows down into the depression in the bed, takes with it a small quantity of lead containwhile quick lime is added to prevent a too ready fusion of the charge, a pasty state permitting the constituents to react upon each other more perfectly. If any silicate of lead is present that is also decomposed by the lime. Finally the heat is raised, and in three-quarters of an hour the metal subsiding in the lead is run out into the receiving pot and covered with small coal, which is afterward stirred with it, then skimmed off and put into the next charge as above described. In some places, as in Cornwall, the calcination and reduction of the ore are carried on by two distinct operations and in separate reverberatory furnaces

When the ore is very pure it may be worked on what is called the ore-hearth, much purer lead being produced in this way than in the reverberatory furnace. In its simplest form, as formerly used in Missouri, it consisted of a square furnace built of logs or stones, to which the air was admitted through an arch in the fore side, the lead being collected in a basin in front. A more improved form, known as the American Porcelain Picture, Drawer, Shutter, and hearth, is sometimes made of cast iron, and so arranged that a hollow case surrounds the hearth, and through this the air passes on its for its preservative influence. Carbonic acid a high temperature. It would be impossible in the limits of the present article to describe all sometimes used in Scotland.

those contaminated by silicates, require to be reduced in the cupola or blast furnace. One form of blast furnace, known as the Siles sian furnace, consists of an upright chimney, square at first, but aylindrical above, having the same diameter throughout, built of common bricks and lined with fire bricks. consists of galena in small pieces 100 parts, cast iron 12 parts and slag from iron forge 14 parts. Each ton of this charge requires a ton of fuel which is thrown against the front, and the ore, &c., against the back of the furnace, the tuyer being so arranged as to act only on the fuel without oxidizing the charge. In the Hartz a furnace of somewhat different form is employed. It is formed by two cones joined at their bases, is about 20 ft. high and 3 ft. in diameter at the widest part. The mouth terminates in a set of chambers, built so as to retard the current from the furnace and retain the volatilized lead fume from the charge. The Castilian furnace is used for very refractory ores, or difficult reducible slags. It is a circular cupola furnace, about 8 ft. in hight up to where the charge is put in, and is 21/2 ft. in diameter, with water tuyeres at the sides and back. The material for reduction may contain about 80 per cent. of lead, and may be a mixture of ores and slag, which are reduced together. If a flux is needed for the ore, limestone is used. The charge is put in with alternate layers of fuel, as in the iron furnace.

Blast furnace lead, as we have above renarked, is hard, the hardness being due prin cipally to the presence of sulphur, antimony and arsenic. These impurities diminish its ductility and malleability; but such lead will offer greater resistance to compression. A small quantity of oxide of lead, mechanically mixed, increases its tensile strength, but oxidation must be avoided when ductility is required. The softening is performed in a reverberatory furnace with very low dome, broad bridge, and evel bed. Considerable heat is used at first, and as it cools, a thick pelificle of slag, con taming the impurities, forms and is raked off, the heat again raised, the slag again forms on ooling, and is raked off, and the operation repeated as often as may be necessary to purify the lead, the whole operation lasting from 24 hours to 14 days.

DESILVERIZATION.

Galena, we have seen, always contains more or less silver, the process employed for exracting which will depend on the amount present, Mr. Pattinson made the important liscovery that when lead containing any notable amount of silver is fused, and they slowly cooled, being all the while thoroughly stirred, crystals will form and settle, which are less rich in silver than the metal was originally. His method of concentrating the silver is based on this fact, and conducted as follows: A series of 9 or 10 hemispherical iron pots, 5 ft. in diameter, and capable of holding 9 tons of metal each, are set in brick furnaces adjacent to each other, but with separate flues, furnaces, lampers, &c.. The pigs of lead are placed in one of the pots near the middle of the range, and melted. The dross on the surface is skim-med off, the fire drawn, and the cooling lead constantly stirred until the crystals make their appearance. These are dipped out with a large perforated iaddle, and, after draining, transferred to the next kettle on the right. This operation is continued until the necessary quantity of lead (about three tons) has been crystalized out, when the liquid portion, now twice as rich as before in silver, is laddled into the adjoining kettle on the left. The same operation is repeated with all the intermediate pots, the rich lead travelling to the left, the poor to the right, until at length the quantity of silver in the market pot, at the extreme right, is reduced, in some cases, to one-eighth of the original amount. The last pot on the left contains lead rich enough in silver to pay for eupelling it, the loss of lead in cupellation being about 5 per cent.

Another process for desilverizing lead, which was patented by Mr. Parkes, consists in fusing lead and zinc together, liquating the alloy of lead and zinc, then distilling the zinc and cupelling the lead for silver. This process depends on the fact that lead and zinc do not permanently alloy, but on separating the zinc ing nearly all the silver.

The noble metals, when heated to fusion and exposed to a current of air, will not oxidize; but any alloy of base metals present will be perfectly oxidized. On this principle, the silver is obtained from the rich lead, the lead being oxidized in a cupel furrace and converted into itharge, which is afterward reduced again to metallic lead.

PROPERTIES OF METALLIC LEAD.

Pure lead is very soft, of a bluish white color. which tarnishes readily in consequence of the formation of a thin crust of suboxide. It has a specific gravity of 11.44, according to Berzelius, and melts at 326° to 335° C. (635° F.) 1t is mallcable and ductile, but wanting in tenacity; a wire 1-12 inch in dismeter does not support 20 lbs. It is not acted upon by dry air or pure water, but is rapidly corroded by the combined action of air and pure water. The corrosion is increased by the presence of chlorides and nitrates, but diminished by sulphates, phosphates, and carbonates; acid carbonate of lime, which generally occurs in spring waters, is remarkable way to the tuyere, so that the blast is raised to waters are very dangerous, as they dissolve the carbonate of lead.

Nitric acid and acetic acid act easily on lead. the various forms of hearths employed in differ- Sulphuric and hydrochloric acids have little of ent parts of the world, and also the methods no action upon it, but aqua regia converts it employed for disposing of the fumes, such as into a chloride. Oil of turpentine also corrodes flues from one to three miles in length, as are sheet lead with such energy that leaden tanks sannot be employed for storing this substance.

Impure ores, especially those containing The uses of lead in the arts are too numerous other sulphides than lead, which, when reduced, and well known to permit of enumeration here.

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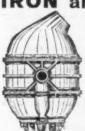
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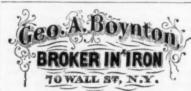
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#### New Patents.

at Washington the following specifications of certain patents lately issued, which will be found interesting :

IMPROVEMENT IN FURNACES FOR HEATING AND PUDDLING IRON AND STREL. Specification forming part of Letters Patent No. 150,122, dated April 28, 1874, issued to

John M. Ayer, of Chicago, Ill. Figure 1 represents a longitudinal section of invention, and Fig. 2 a cross section of the

The invention consists in the various parts and combinations as hereinafter specified and claimed, wherein A is a chamber provided with suitable grating, B, and ventilating opening B', which may be made adjustable, so as to govern the amount of draft admitted to the furnace. C is a door, through which the furnace is supplied with fuel. D is the roof of g g, the chamber A, and it is made to incline at a proper angle downward toward the chimney or stack M. E is a wall or partition, commonly known as the "fire wall," standing between the of the fire wall E is provided with the open flue, "secondary combustion chamber," G' which forms the upper portion of the fire wall inventions of interest to our readers

rear of and below the floor of the bed of the plate. The lever is automatically operated on chamber H. in combination with the fire wall We take from the records of the patent office E, provided with the secondary combustion chamber G'.

> 2. The combustion flue or chamber G. 3. The combination of the perforated combustion flue G' and the flues G G.

4. The combination of the furnace H and flues G G, exposed partly to the action of the said furnace.

5. The combustion flue G, provided with the beveled or angular top.
6. In combination with the beveled fire wall

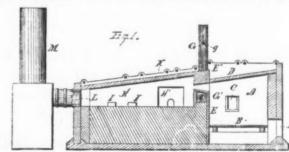
E, the upper fire wall E', said wall E' extending its angle to a point opposite and above the higher angle of the wall E.

7. The combination of the fire wall E, beveled combustion chamber G', flues G G, and beveled upper fire wall E"

8. The flues G G, provided with the dampers in combination with the combustion

B, inclined roof D, fire wall E, combustion chamber G', flues G G, upper beveled fire wall chambers A and H. The upper or free portion E', and chamber H, provided with the angular or inclined roof K.

The following patents were lately issued for



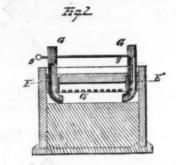
IMPROVED BEATING FURNACE.

E, and is made continuous at each end with the secondary combustion flues G G, which open outside the furnace, after passing a suit-of the lantern or lamp has attached to it, and able distance through the same. The flues removable with it, a reflector consisting of a G G are provided with the regulating dampers central pendant, a perforated horizontal flange, g g. The upper face of the secondary com-bustion chamber G, which forms the upper light downward. portion of the fire wall, as aforesaid, is made at a bevel or angle substantially opposite to that of the roofs D K and the lower free portion of the upper fire wall E'. H is the heating or puddling chamber, provided with a roof, K, inclined at an angle parallel to that of the roof D of the fire chamber A. The chamber H is provided also with a door or opening, H; through which the chamber H is supplied with . 12 50 piles, metal or anything intended to be heated, and through which said chamber H may be inspected. I represents piles or other articles to be heated or charged. L is the exit flue, com-monly called the "velvet flue," of the cham-

The chamber A is placed at the rear of and below the floor of the chamber H, the difference in hight between the floors of the chambers A and H being substantially equal to the hight of cylinders, A B. the fire-wall E.

The various parts specified may be constructed of any suitable material possessing sufficient strength and capability of resisting high degrees of heat.

Fuel is placed upon the grating B in the chamber A, where the first combustion takes place. This combustion is, however, necessarily imperfect and incomplete. The heat, rising, and carrying with it the unconsumed matter, is so acted upon by the inclined roof D that a direct and undue draft from the chimney M will be counteracted, and this modified and rotating hasp or bolt D, naving a hook, i, draft will conduct the heat and unburnt matter up and over the fire wall E, and secondary combustion chamber or perforated flue G' upon the upper portion thereof. At this point-i. e., the perforated combustion flue G'-the combustion



is made perfect and complete by a sufficient supply of oxygen through the flues G G, which, after the portions exposed within the furnace ecome sufficiently heated, operate in a manner sufficiently obvious not to demand specific demonstration.

Not only is combustion made perfect and omplete at the secondary combustion flues G G. G. but the angle of the flue G', and the opposing angle of the upper fire wall E', and the inclined roofs K and D, operate in such a way that the flimes and heat, instead of rising and traveling along the crown and upper portion of the chamber H, as in other furnaces, are made to take an opposite course, and drop upon and travel over the bottom or floor and lower portion of the chamber H, while the crown K and upper portion of the chamber H remain untouched and unaffected by the flames and intensified heat.

The entire heat is thus applied in the best and most a lyantageous manner, by being precipitated and retained directly upon the metal

REFLECTING LANTERN OR LAMP CAP. To Thomas H. Braisted, New York .- The cap

REFRIGERATOR.



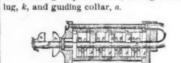
through the ice chamber,

To William R. Hanks, Welles Mass .- Claim .- The improved knife scourer composed of the socketed base D and socketed cap C, connection screwrods E E, and two abraisive



To Hubert C. Hart, Unionville Conn.-The clamping-jaws are operated by an end screw work ing in the nut in which they are hinged.

COMBINATION PADLOCK To William F. Rutter, Philadelphia, Pa.-Claim. 1. The revolving rings or tumblers A, held together by means of heads B B and rods C C' C' in combination with the sliding



2. The lug m on the head B', in combination with the sliding and rotating hasp or bolt D, having a knob, h, and lug, n, for limiting the rotary movement of the hasp or bolt

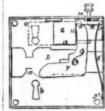
CAN OPENER.

To George C. Spangler, Allegheny, Pa.—The angular end of the shank rests upon the tin to be cut, and has projecting from its lower side, at the obtuse angle, a cutting blade.

COMBINED SCOOP AND SIFTER To Joseph Baker, Rochester, N. Y .-In the scoop is inserted a detachable agitator and a curved sieve; also a



perforated and a detachable bottom LOCK FOR DOORS, ETC To Ambrose J. B. Ber

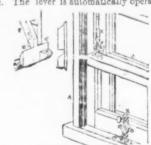


ger, Easton, Pa.-The tumblers B and B', bent lever F. guard G and stop H, with the spring g, stop H, and pin arranged so that the overed independently of any other action of

SASH FASTENER.

To Anthony Iske, Lancaster, Pa .- The lower charged, while the crown, a portion heretofore sash of the window is provided with a comrapidly burned and destroyed, is preserved bined latch and lifter, locking, upon the inside, from undue heat, and made much more durable into a slotted catch plate on the window sill. and lasting, inasmuch as the intensified heat. On the puring strip, near the edge of the does not come in contact with it.

On the puring strip, near the edge of the upper sash, is attached a locking device con-Claim .- 1. The chamber A, place I in the sisting of a pivoted lever with a projecting foot



its pivot by the joint action of a peculiar place on the top of the inner meeting rail, and by the lower sash itself when moved upward, the con struction and combination being such that when the lever sash is locked down the auto matic action of the upper locking lever and plate rigidly secures the upper sash at any de ared hight for ventilating perposes, while it cannot be pushed further down by outside interference

To Joseph Ellenberger, Easton, Ohio,-The narrow strip of metal is bent to a right angle at its ends, and is screwed on to each of the two outer bolts, outside the nuts, so that they



stand in a vertical position. The locking har is then placed on the upper edge of the nuts and under the bent ends of these strips. Said bar is bent down at one end, and secured at the other by a split pin.

LANTERN. To Rufus Nutting, Wheaton, Ill .- The doors

are hinged to the vertical uprights, which serve as air conductors. Rugulators of wire gauze or hinged plates surmount the glass panels, which are secured by V shaped guides. Fresh

air is supplied through the lower guage inducts and being heafed, passes through the dome and returns through main uprights and horizontat passage between flame and oil fount. A cold air conductor is located within the hot air channels in the dome

SASH HOLDER

To Elias Stouffer, Macon Ill .- The corrugated faced cam is pivoted on a sliding pintle, which is hinged to a flat metal plate fitted on the lower meeting rail. This plate has a slot in which the cam drops when the pintle is slid forward. its front edge or corner entering the slot, while its roughened

face engages and holds the outer sash. The hold is released by raising the cam out of the slot and sliding the pinule to the other end of the plate.

SAW SET. To Moses E. True, Oakfield, N. Y .- The im-



provement on Letters Patent consists in making the rest c adjustable and reversible, and in providing same with shoulders adapted to set the

teeth of different saws. CUTLERY HANDLE

To George A. Seaver, New York, N. Y., and John C. Milligan, South Orange, N. J .- The handle is made up of the flattened tang of the



blade and two concavo-convex sides of thin metal, which are secured to each other, and to the tang by the edges of one being bent over the edges of the other, and of the tang.

FASTENER FOR MEETING RAILS OF SASHES.



Claim -The herein described sash fast ener, consisting of the base A, with its vertical flange C, through which openings F are made; the lever B pivoted thereto, the

spring d in rear of lever, and the said lever constructed with a curved arm, E, upon each a de forward of the pivot, combined with the ke-per G I, constructed with openings L, correspond ing to the openings F in the other part, LOCKING KNOB LATCH.

To Perley Loftin, Warren, Mass. - The tubu lar knob spindle is provided with a sliding rod baving projecting teeth, which engage with rack sing for the purpose of operating a latch



This sliding rod is operated by bolt. outsidekey hole can be means of a slotted sleeve, so as to throw the teath out of contact with the rack ring, and thus prevent the ber a from being operated by the knob LANTERN.

> To Thomas Langston, Mer 'e Conn .- One end of the guard clamped between the globe and cap, or between the globe and base, the other end of the guard being

Eron.

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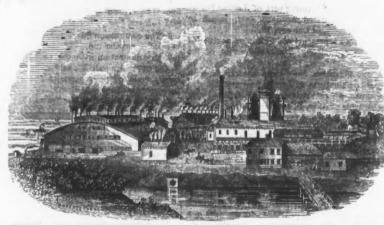
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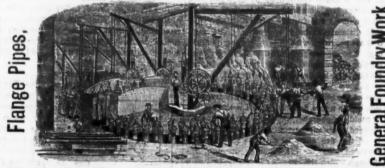
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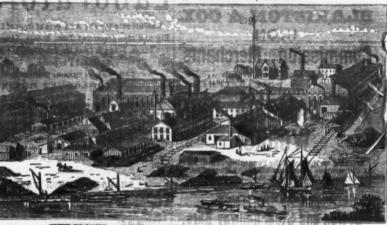
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The Minerals of Muskingum Co., Ohio.

From an interesting pamphlet published by the Board of Trade of Zanesville, Ohio, we take the following relative to the mineral resources of Muskingum county, of which it is the

Muskingum county is situated on the western margin of the great Allegheny coal field, and logical board having this section of the county consequently borders the vast coalless district which extends over two-thirds of Ohio, and all of the State of Indiana, except its western and southwestern border. Northern Illinois, Wisconsin, Michigan and Western Canada, are also largely dependent for coal which must be ohsained from this and adjoining counties. This coalless district contains already many large cities, such as Cleveland, Toledo, Detroit, Chicago, Indianapolis, Dayton, Columbus and Cincinnati, and numerous smaller ones, all rapidly growing, and dependent in a great neasure for their supplies of coal from this and other counties in its immediate vicinity. The central position of Muskingum county in this coal region, and the advantages it possesses in the way of railroad transportation, must enable it in due time to command the market of a very wide range of country.

There is not a township in Muskingum county n which workable coal beds are not found. Within the county are seven distinct coal strata, varying from three to seven feet in tlackness, beside ten or twelve additional seams, a portion of which are also workable, out generally are so thin as to be, at this time, of little economical value, making an average aggregate thickness of over forty feet of available coal seams. The report of the State geologist on the geology of Muskingum county says, that "within the limits of this county there is found, in thicker or thinner developments, a represen ative of nearly every import ant coal seam in the coal measures of South-eastern Ohio." While the coal area of Musk ingum county is, therefore, greater than that of any other county in the State, this ccal, lying in accessible seams in the hill sides, is readily drained and easily and cheaply mined (shafting will for long years be here unknown). and constitutes nearly every variety employed in the numerous and economical purposes of life. As indicating the quantity and extent of the coal measures here existing, the following extract from the report of the State Geologist, W. Foster, author of "Pre-Historic Races of North America," may be pertinent in this connection. (See Geological Report of Ohio, 1837, page 87). He says: "Here, then, is fossil fuel mbraced in one county sufficient to supply the people for ages. Should the consumption of coal become proportionately as great as in England, there is sufficient in this county alone to supply the population of our State with fuel for two hundred and fifty years."

Prof. Mather, President of the first State Geological Board of Ohio, in his report to the General Assembly in 1837, speaking of the coal formations of this section of Ohio, says:

"Along a section from the base of the series at Brownsville, fourteen miles west of Zanesville, to Marietta, at the mouth of the Muskingum, in a thickness of 800 feet, are eight workable seams of coal." He also says, in nother place in the same report: "The number of workable beds of coal in the coal fields of Ohio are found to be greater than in Pennsylvania or Virginia, and in the same vertical thickness much greater than in the coal fields of England."

Many of the varieties of the Muskingum county coal are of a superior quality, but space only permits a very brief note on this subject. The State geologist in the report of the coals of this county first above quoted (see Vol. I, Geological Survey of Ohio, 1873), says: "There appears to be almost every possible gradation between the dryest or nou-coking coals and those which soften and swell in burning, and are in the highest degree coking in quality."

The coal from the seam known as the three and one-half foot vein has been used in the manufacture of coke to a considerable extent, producing an article strong and solid, adapted o the manufacture of iron and the various other purposes for which coke is employed. As a gas making coal it is considered superior, and but for the fact it contains a small quantity of bisulphide of iron (which, however, on account of its weight is easily washed out), would stand at the head of gas making coals. This nay be seen from the following analysis of samples of this coal taken through the entire seam, and which analysis is about an average of this entire coal vein :

	Lower 2 feet of seam.	Lower 1
Water	5 60	5.20
Fixed Carbon		51.80
Volatile Matter		87.80
Drab Ash		5.50
Sulphur	76	1.75

There is also a seam of dry burning coal, as it s called, non-coking, above this three and onehalf foot vein, the thickness of the seam varying from three to seven feet, and covering almost the entire eastern section of the county. Its greatest thickness is in the immediate vicinity of Zanesville. This coal, for the most part, is of of the hammer, into almost any required form. a quality enabling it to be used for smelting purposes, but its character can best be judged

all taken from different openings: 
 Water.
 6:15
 6:55
 5:80
 6:23

 Ash.
 4:41
 4:20
 4:90
 4:33

 Volatile Matter.
 30:97
 3:66
 31:90
 30:98

 Fixed Carbon.
 56:47
 28:39
 56:60
 59:16

 Sulphur.
 '41
 '52
 35
 28

The varieties of coal here found are, for the nost part, the bitummous and the cannel coal. The former largely predominates, though there are considerable veins of the latter, the thickest being near three feet.

MON ORE.

it will be seen that there is hardly a hill in the southern half of the county that does not contain iron ore, and in very many instances this ore is found in workable seams. But the most valuable ore beds, both in extent and quality, are in the northern and northeastern portions of the county, and which are not represented on the map from the fact that the scams have not yet been traced by the member of the geoin charge. Consequently there is no recent estimate of the extent of the ore beds of this section of the county, and the quality of the ores is undetermined. Should the analysis when made demonstrate the ores of this section of the county to be equal in quality to those of the Southern section, these ores great revenue to Muskingum county, as they can be delivered at the Zanesville furnace as ore beds embracing the western townships of Muskingum, and the castern townships of Licking county, occupy an area equal to two hundred square miles." He, also, in the same report, estimates the quantity of iron ore in Muskingum county, and says: "The ores are rich, yielding probably from 30 to 60 per cent. of 000 square yards, and that each yard is capable character: of producing one ton of pig metal." The geological Report of 1873 says: "Ore; of excellent quality are much more abundant in this county than was formerly supposed."

The analysis of these ores, as made by the present State chemist, ranges from 32 to 521/6 per cent. metallic iron.

The following is the analysis of a number of samples of ore furnished him by the State geologist, selected from different neighbor-

hoods in the county:		
Metallic Iron. Hopewell township 37 07 52:51 Falls township 41:33	Phosphoric Acid. Trac:	Sulphur. Trace Trace Trace
Zanesville corpora- tion	3.50	.17
tion	31 39 quoted, in a	Trace.

contained in the report of the Commissioner of Statistics of Ohio for 1871, in speaking generally of the iron ores of the eastern district of Obio, including Muskingum county, says: "The ores of the district are generally of great excellence and purity, and the Iron made from them has a very high reputation." These ores have as yet been mined only to a very limited

LIMESTONE.

The limestone of Muskingum county exceeds omputation. There are here found twenty-two distinct and separate seams, and it is seen cropping out in almost every hill in the county. The color varies from a light gray to a deep blue. It is sub-crystalline in texture, and is. found in strata varying from a few inches to five or six feet in thickness, some of the strata being separated from each other by a very thin layer of clay, or other mineral deposit. The blue limestone is, to a considerable extent, fossiliferous, but very durable, almost as much so as granite, admits of a high polish, and as a flux in the manufacture of iron, is nighly approved. As a "gas lime" it is superior, as the following analysis demonstrates:

Carbonate	of	lime								 				•						۰	94:34
**		mag	n	e,	ы	и	١,		0		,	٠		0	0.1						2.06
Silica and	881	id.				۰								۰			۰				2.00
Allumina:	and	iro	$\mathbf{n}$																		1.60

100.00

The gray limestone everywhere abounds along the creeks and smaller streams, the hill sides and on the most elevated lands. Prof. Andrews says: "The limestone in the bed of Jonathan's Creek is the representative in the State of the lower carboniferous limestone of Illinois and Missorn, and is a deposit of very great scientific interest." It is also susceptible of a high polish, and has been used in the construction of jambs, pillars, and other ornamental work. For purity, beauty and durability, these varieties of limestone have not their su-perior in the State, and in addition to their use in the arts, and conversion into lime and employment for building purposes, they have been sought for various purposes on account of the high finish of which they admit.

BUILDING STONE. The hills of Muskingum county are filled with building stone of almost every variety and quality. The free and sand stones are durable and half mile east of this place. Yesterday coal harden with age, as can be seen in numerous private and public structures in and about Zanesville. They are now coming into demand for the construction of public edifices. They are found imbedded in the river hills and along the lines of railroad, and are easily and cheaply quarried. A very superior building stone is found in the southwestern section of the county, which has much the appearance of the cerebrated "Waverley sand stone," and when polished is almost equally as beautiful. There are also in the immediate vicinity of Zanesville, and in various neighborhoods throughout the county, quarries of flag stone of fine grain, beautiful appearance, of superior quality and adjusted, by the touch These flags are very durable, the sand is fine, and mica is so disposed in horizontal plates that from the following analysis of several samples, it fractures in smooth, flat surfaces. There is also stone in different neighborhoods suitable for the manufacture of glass, and used extensively by the Zanesville glass manufacturers. Builders' and molding sand is abundant, sufficient to meet any demand, in all parts of the county.

What is called "Burr Stone" is found in the western section of the county. It exists on both sides of the line dividing Muskingum and Licking counties, and extends into the north-By an inspection of the geological map of east corner of Perry county. The stone is of a Muskingum county, accompanying the first grayish or yellowish white, sometimes passing volume of the Geological Survey of Ohio, 1878, into bernstone, exists in beds from two to six steel works

feet in thickness, is fine grained and compact, and well calculated to give a fine edge to out-ting tools or implements. The Indians used the compact hornstone for arrow heads. This Burr was, years ago, quarried to quite an extent, and made into mill stones, but as the material lacked tenacity they were not regarded with equal favor with the "French Burc." Their manufacture has of late been abandoned. and at present this Burr is not sought

POTTERS' CLAY, GYPSUM AND KAOLIN. Potters' clay is found in many sections of the

ounty. It exists in scams varying from a few nches to twelve and fourteen feet in thickness, and in quantities sufficient to be successfully employed in the manufacture of pottery ware. The conversion of this clay into ware has, for must become, at no distant day, a source of many years, been an important industry of this county, and a source of large revenue to those ngaged in its production. A bed of gypsum cheaply as stone. Foster, quoted above, in has also recently been discovered about six speaking of the ore of this county, says: "The miles west of Zanesville, but its extent has not get been determined. It is not quite white, but has the appearance of being a good article, and the only mineral of the kind yet discovered the Muskingum Valley. A twelve foot seam of kaolin has also recently been discovered m the eastern section of the county, the clay being of the same composition from top to bottom of iron, and easily wrought, and number 153,600,- the seam. The following analysis shows its

				4	53.603
Allumina					4.20
{im+			********	***** ***	:30
Ir n				*******	.70
Alkalies	*****	*********			**
Water			*******	erexery.	3.60

Large deposits of clay suitable for making fire brick are found in the immediate vicinity of Zanesville, and in other neighborhoods through out the county. Glass stone is found in the northern portions of the county in the river hills, millions of tons of which can be quarried, and it exhibits, on comparison, no perceptible difference from the celebrated stone of England used in the manufacture of iron and steel, and which is considered the best fire proof material vet discovered. It is most refractory, and the analysis proves it very pure silica, containing a small per cent of potash.

SALT AND PETROLEUM.

Borings for salt water have been made at various points along the Muskingum River in this ounty, and also on the Licking and Moxahala and Salt Creeks. In no instance has there been a failure to obtain salt water, though in some instances the water was deficient in strength or quantity, and unprofitable to evaporate. In all there have been about sixty salt wells sunk in this county, but only a small number of these are at this time in operation. The water is evaporated by the use of coal, and while some of the wells have produced as high as 7000 barrels per year, others have not produced half that mount. As a branch of industry, the salt ousiness does not command that importance it did years ago. Should the demand for salt increase, the salt business revive, and its manufacture again bring remunerative prices, these salt webs could all be again put in operation at comparatively small cost.

Petroleum wells have also been bored in the outhern part of the county, and petroleum in considerable quantities obtained. This oil, for lubricating purposes, has no superior, and commands a ready market, but the price for the last few years has been such as to discourage its production.

OTHER MINERALS.

Other minerals of less importance than those above named might be mentioned as here existing, but enough has been presented to indicate, in this particular, the resources of the county There are other deposits of stone and clay than those enumerated above, but their value in the arts or otherwise remains to be tested. Many details might have been given, interesting to the general reader, but enough has been presented to demonstrate that this section is amply stored with all those minerals so necessary to the wants and conveniences of mankind, and which must, at no distant day, prove not merely a permanent source of wealth to the community which may here be gathered, but to the State and country

Coal Discoveries near Upper Sandusky, O .- A dispatch from Upper Sandusky, under date of June 14th, says: For the past two weeks parties have been engaged in quar was discovered in small quantities among th stone, which created considerable excitement To-day the quarry was visited by Prof. Jo: u Pauseb, formerly a prominent coal miner of the East. He pronounces it genuine coal, and says that he has no doubt coal can be found in abundance. Further investigations will be made at once by our most prominent citizens

On Tuesday last the steel works of Messra. Reese, Graff & Woods, Pittsburgh, was damaged by fire to the extent of \$300.

Messrs. Burden, of Troy, have made some improvements in their blast furnace, which will increase its economy and efficiency. They have added a new hot blast oven, raised the stack 10 feet and provided it with a bell and hopper a

The Canadian Steel Company have taken hold of the Londonderry iron mines of Nova Scotia. and are preparing to greatly extend their works.

A number of steam propellers, capable of carrying 1500 to 2000 tons, are to be built of ster by a party of English capitalists and put in the Missiesippi Vancy trade.

Eight acres of land at McKeesport have been purchased by a party of gentlemen of Pittaburgh, who will erect a blast furnace and a large

#### NICHOLSON FILE.

All Nicholson Files are cut with the Patent Increment Cut, an invention owned and controlled exclusively by us, the file cut is this manner being Patented as a new article of manufacture, and differs from all other machine cut files (all ot which have their teeth out with equal spaces) by being out with teeth slightly expanding or increasing in size and space from the power, thus avoiding the too great regularity of teeth common to all other machine cut files. The tendency of all cutting tools with teeth or cutters placed at regular distances from each other may be illustrated (to the machinist at east) by the fluted reamer—as it is well known that if a round reamer be made with (say 12) teeth whose spaces are equidistant, the hole reamed will not be round and smooth, but will approximate to a hexagon in shape. Whereas, if the same number of teeth be made of irregular distances, the hole reamed will be both round and smooth. The same is true of a file, hence the necessity of its having teeth at unequal distances, and to which we have applied the name of Increment Cut File, which possesses all the advantages of hand out work, and the accuracy and uniformity of machine work. It is now upwards of seven years since this File was introduced to the public, and the demand has increased until our production is undoubtedly treble that of any File manufactory in the country.

We put all files under seven inches in boxes of either one-half or one dozen each. These boxes are neatly arranged, and open on the end, on which the kind is plainly marked with printed labels, acknowledged improvements on the old methods.

The "Increment File" is not an experiment, but an established fact, and already has acquired a legitimate demand for upwards of 500 dozen per day. We employ no regular Travelers, but our goods may now be found in the hands of the principal jobbers and dealers throughout the country.

Prices and terms will be forwarded on application to

NICHOLSON FILE COMPANY, Providence, R. I.

Established 1816.

# Peter

95 Fulton Street, New York,

SOLE AGENTS FOR

Thomas Turner & Co.'s Suffold Works. SHEFFIELD.

# FILES AND HORSE RASPS.

And Importers of

## STUBS' FILES, TOOLS & STEEL

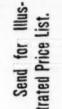
\$5 00 to £ Stubs' Files & Tools, - \$8 00 to £ 5 50 to £ Stubs' Bright Steel, - 7 00 to £ Turner Rasps, -

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McCAFFREY & BROTHER, Manufacturers of FIRST QUALITY FILES and RASPS ONLY Nos. 1732 & 1734 North Fourth Street, Philadelphia, Pa.

### Diamond File





trated Price

G. & H. BARNETT.

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FILES

AND

XTRA QUALITY, MADE FROM THE BEST

IMPORTED STEEL

RASPS

Auburn File Works, AUBURN, N. Y.

### JOHN **ROTHERY'S** Celebrated Hand-Cut FILES,

Made of Best English Cast Steel.

WALSH, COULTER & FLAGLER, Sole Agents.

83 Chambers and 65 Reade Streets, N. Y.

See Advertisement in this Paper, April 9th, May 7th, May 28th. Address for further information, Circulars, En

gravings, &c., 432 Market Street, Philadelphia,

48 Warren St., N. Y.

SASH CHAIN.

Chain and M S Pulley 4 80 for

CHEAP EST 3

TRENTON

Heavy ADE

## THOMAS MORTON.

### Brass & Copper Chain,

And patented attachments for same, for sust to 1500 lbs. Sashes can be suspended with me a shorter time and with less trouble than by a cord. I am now offering the Chain and foother in the market. Also manufacturer of the Straight and Circular Spring Balances. Esta

for suspending windows, from IC with my Chain and attachments e ordinary common s cheaper than any ON & BREMNER'S



# **Coopers' & Turpentine Tools.**

Coopers' Adzes and Axes. Coopers' Frees, Stocked Croze and Irons, Coopers' Jointers, Trass Hoops, all sizes.

Turpentine Shavers. Turpentine Axes, Turpentine Dipper

FOR SALE BY

N. WEED, 37 Chambers St., N. Y.

CHARLES E. LITTLE, 59 Fulton St., N. Y. MECHANICS' AND MACHINISTATOOLS, COOPERS' TOOLS & TRUSS HOOPS a specialty.

DARLING, BROWN & SHARP'S Machinist Tools.

Solid Cast Steel Pump Augen

Merchant's Improved Dowelling Machines.

### FERNALD & SISE,

HARDWARE MANUFACTURERS' AGENTS,

Reading Hardware Co. Crooke & Co. Yerken & Plumb. Hartje, Wiley & Co. Vulcan Horse Nail Co. Wulsh & Bro. Moran & Sons.

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Underhill Edge Tool Co. Plumb, Burdict & Barnard. Hotchkiss, Tuttle & Co. Klein. Logan & Co. T. T. Rhodes. Orleans Scythe Stone Co.

### TURNER, SEYMOUR & JUDDS.

## Hardware and Upholsterers' Brass Googs.

1. L. Davis' Patent Levels, Stevens' Calipers and Dividers, Page's Auxiliary Jaws.

Manufacturers of Judds', Prindle's and Combination Patent Curtain Fixtures, Locks and Curtis Patent Raisin Seeder, Patent Twine Boxes, Picture Nails and Hooks, Escutcheon Pins, Coat and Rat Hooks; also Misculaneous Iron and Brass Goods.

Small Brass and Iron Castings made to order. 64 Duane Street, NEW YORK.

To all Manufacturers who use Emery for polishing Iron and Steel Goods, and for the manufacture of Polishing and Cutting Wheels, and other purposes.

### CORUNDUM

UNIONVILLE MINE, Chester County, Pa.,

PENNSYLVANIA CORUNDUM COMPANY.

JAMES C. HAND & CO. COMMISSION MERCHANTS

PHILADELPHIA.

MANUFACTURERS OF AMERICAN HARDWARE.

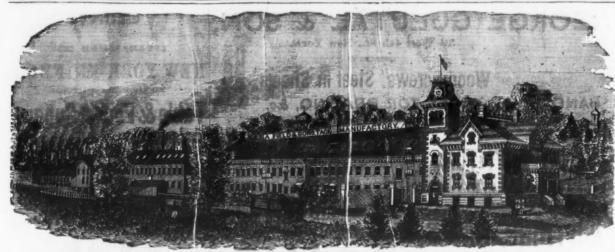
& Taft's Pat. Wrenches. Mouse Traps. Wire Seives. Pick, Siedge & Hammer adles. Scale Beams. Scale Beams. Patent Tap Borers. College Collars. College Collars. Collars Horse Collars. Brandage Horse Natis. Brandage Horse Natis. Shattuck's Platform Counter & Nat Dippers.

Ynw's Cow Bella. Axes, Picks and Hatchets. Hammers, Crow Bare, and Irons. Boring Machines. Cost Iron Hatchets. Coffee Mills, Star Steel Spoons, Stocks and Die.

NORWICH, CONN. Agencies:

Hogan, Clarke & Sleeper, 82 Chambers St., N. Y. Adams & Chute, 19 Oliver St., Boston.

I. G. Brenner, Son & Co., 21 North 5th St., Phila. F. H. Davidson,
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# A. FIELD & SONS.

TAUNTON, MASS., Manufacturers of

### Copper and Iron Tacks, Tinned Tacks, gage at Philadelphia, July 7th.

SUPERIOR SWEDES IRON TACKS. for Upholsterers' Use, Saddlers' Supply, Card Clothing, etc., etc.

### American and Swedes Iron Shoe Nails.

Zinc and teel Shoe Nails, Carpet, Brush and Cimp Tacks, Common and Paten: Brads, Finishing Nails Annealed Trunk and Clout Nails, Hob and Hungarian Nails,

Copper and Iron Boat Nails, Patent Copper Plated Tacks and Nails Fine Two Penny and Three Penny Nails, Channel, Cigar Box and Chair Nails, Leathered Carnet Tacks, Glaziers' Points, etc., etc.

#### OFFICES AND FACTORIES AT TAUNTON, MASS.

WARRHOUSE AT 35 CHAMBERS STHEET, NEW YORK, where may be found a full assortment of Tacks, Brads, &c. for the accommodation of the New York Wholesale and Jobbing Trade.

Any variations from the regular size or shape of the above named goods made from samples, to order.



## Washoe Tool Mfg. Co.,

Celebrated Washoe Railroad and Mining Picks,

MATTOCKS, HATCHETS AND OTHER ADZE EYE TOOLS.

Having doubled their Manufacturing facilities, they can now fill orders

All orders should be addressed to their

#### SOLE AGENTS

Messrs. Hogan, Clark & Sleeper,

82 Chambers St., N. Y., or 105 Broad St., Boston, Where Catalogues and Discounts can be

had on application. H. H. TRENOR, Treas.

### CHURCHILL & CO., CHARLES American Merchants & Importers of Machinery & Tools,

28 Wilson Street, Finsbury, London, Eng.

New York House, W. CHURCHILL & CO., 493 Greenwich St., N. Y.

To AMERICAN MANUFACTURERS we ofter our services for the introduction, in Great Britain and the Continent, of MACHINERY and TOOLS of improvious in London, and during that time we have succeeded in establishing a demand which is now rapidly in the longer of the succeeded in establishing a demand which is now rapidly in the longer of the succeeded in establishing a demand which is now rapidly in the longer of the succeeded in establishing a demand which is now rapidly in the longer of the succeeded in establishing a demand which is now rapidly in the succeeded in establishing a demand which is not represent the succeeded in establishing a demand which is

#### JOHN MAXHEIMER, Patented,



BIRD NEW YORK.

DEMAREST, JOYCE & CO., Iron Founders, MACHINISTS,

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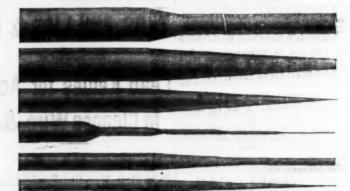
FOUNDRY Sewing Machines, Steam Fittings, IRON

LIGHT WORK of all kinds. ALSO

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Japanning. Clymer Streets, BROOKLYN, E. D., N. Y.

### The MALTBY, HOPSON & BROOKS MFG. CO., Waterbury, Conn.



POLISHED STEEL DRILL RODS Straight Polished Steel, Iron, & Brass Wire Cut to any Length & Exact Size, append Articles from either Round or Square Wire any shape or size. Also, Capewell's Grant Natl Pullet

FOR HOTELS, OFFICE BUILDINGS, STORES, WAREHOUSES, FACTORIES, MINES, BLAST FURIJACES, de

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adaptation to all purposes for which packing is used. 2. Its durability. It will onlist any other sticle in use. 3. Its cheapness. It can be furnished to the consumer at a lower rate than any other packing.

#### BUSINESS ITEMS.

PENNSYLVANIA.

Brown & Co., of Pittsburgh, have received the contact for making the boiler iron for the water works at Cincinnati.

A co-operative iron company is to be organized at Pottsville, consisting of puddlers and other iron workers. They propose to either build works along the Berks county Railroad' or lease the mill property of the Hamburg Iron Co., and operate that on the co-operative plan. About thirty practical men are interested in

The Lehigh Valley Iron Company, of Coplay, s filling an order for pig fron at \$42 a ton. The contract for this iron was made before the panic, which accounts for the exceptionally

The rolling mill and nail works at Birdsboro' Berks county, have stopped for repairs.

It is rumored that the Glendon furnaces, Easton, will soon be blown out. These furnaces and their connecting quarries and mines give employment to 1000 men.

The rolling mill at Milton, is running on full time, with orders enough on hand to keep it going for several months.

The valuable coal property of the Benzinger Coal & Iron Company, near St. Mary's, Elk county, is to be sold on foreclosure of a mort-

Militon Furnace, Jackson, went into blast a few days ago.

The Robesonia Furnace, lately rebuilt by the firm of Weiner & Birkinbine, has gone into blast, making 16 tons of iron the first day.

RHODE ISLAND. The American Enamel Company, of Proviof brick, 100 feet long, two stories in hight, number of hands, and have deservedly won the reputation of producing some of the finest enameled and japanned work in the country. They hold several valuable patents; one is on their "Royal Enamel," which is claimed to be unsurpassed for durability, toughness and The manufacture of the "Huntoon Goverbrilliancy of lustre; another patent is nor," formerly carried on in Boston, has been on their justly celebrated "Wrought removed to Lawrence. The proprietors, E. ance of water, gas, &c. It has resisted the of the work furnished, which is all guaranteed severest tests of acids of all kinds, heat and has no rival of equal merit, and the great care high reputation their pipe and general work has everywhere attained. Though the majority of their fancy work is finished in jet enamel, yet they finish a large amount in brown and imita-tion of fancy woods. Their patent fancy colors

G. Johnson, superintendent. OHIO.

leather or paper. The company is now under

the efficient management of Mr. Chas. A. Gam-

Saws of all kinds are manufactured by James Ohlen, at Columbus, who has been established over twenty-one years. His list includes circular mill, muley, gang and cross-cut saws, his feet, nine gauge, and five feet, eleven and 40x40, for hardening, and one 50x15 for filing. The grinding machine is of peculiarly solid construction, built after Mr. Ohlen's design, and secures a very even thickness for the saws.

is one of the finest and most convenient, as to light and space, in the country. It is built of brick, with slate roof, is 323x50 feet, two stories high. The company are soon to erect a founcompany includes steam engines for blast fur-They are now finishing a splendid engine for being five minutes, and the latter twenty mina 24 inch steam cylinder, and a 48 inch stroke. It weighs 47 tons.

MISSOURI. The Bessemer Steel Manufacturing Company, at St. Louis, will, when completed, be a very extensive affair. The capital of the company is \$1,000,000. The works are located on the the property embraces 100 acres of land, with a frontage on the river of 1197 feet. There will feet at boshes, and 13 feet tunnel head. The to Cairo and Big Muddy rivers. The works are will employ 250 hands.

It has been determined by the Southeastern Railread Company not to rebuild their machine and repair shops at Mount Vernon, which were recently destroyed by fire. Belleville has been selected as the best point for these shops, and we congratulate that thrifty town upon its new acquisition of an important business.

In the matter of foundries and machine shops Southwest. In the manufacture of the single mated that between 2000 and 3000 miners have ployment to 1500 hands. Her machine shops represent a capital of \$1,750,000, and give employment to 1300 hands.

There has been \$45,000 expended by the Chicago Zinc Company, in the erection of works at Cherokee, on the line of the Missouri River, Fort Scott and Gulf Railroad.

#### INDIANA.

The Evansville rolling mill was sold at auction recently for \$60,200. It was bid in by a new company, composed of citizens of Evansville and iron men of Pittsburgh and Cincinnati.

John T. Levis & Co., proprietors of the Enterprise Iron Works, Covington, are building a nut machine which will weigh, when completed, nine tons, the largest in the country. pacity of the machine will be from two and a half to three tons of nuts per day.

#### CALIFORNIA.

The San Francisco Copper Mining Company, perating near Spencerville, a few miles east of Wheatland, have new furnaces built, and commenced operations last Monday. They have put a new pulsometer pump into the mine, which works well and is capable of handling all the water in the mine.

NEBRASKA.

An agricultural implement factory is to be tarted at Grand Island.

#### MINNESOTA

The Chamber of Commerce of St. Paul is organizing a stock company with a capital of \$250,-000 to \$500,000, to encourage the establishment of important branches of manufacturing there, by loans of part of the capital required or by direct investment.

#### MASSACHUSETTS.

Among the older Lawrence industries is that of the Merrimack Iron Foundry, which makes dence, was organized in 1866. Their factory is a specialty of machinery castings, doing a large amount of work for the Lawrence mills with other buildings attached, covering in all They occupy a building 200 by 70 feet, and about an acre of ground. They employ a large operate two furnaces, having a capacity for melting about 6 tons of iron per day. Forty hands are employed, being the same number as before the panic, and they are working on full time. J. S. Bennett and Wm. H. Jossylyn are

Iron Enameled Water Pipe," of which Palmer, Boardman & Co., have fitted up their they are the sole manufacturers. By the shop with new and improved machinery, and application of their "Patent Royal Enamel" to intend, if possible, to give their customers even wrought iron tubes they produce by means of better satisfaction than heretofore, both in the great heat a most perfect pipe for the convey- promptness of tilling orders and in the quality

The Lawrence Boiler Works have rebuilt water, and scientific men who have examined their shops, the main building being 40x80 feet, it, we understand, say that as a water pipe it and are having a 15-horse engine put in, and setting a new boiler. The works will be runand pains taken by the company in the enameling of this one article, as well as in every departpresent force. They have a contract to build ment of their business, entitles them to the two bleaching tiers and a steam box for the

CONNECTICUT.

The Meriden Britannia Ware Company are filling a large order for the very best pure nickel silver goods, for the Pacific Mail Steamand imitation shell on wood work are truly ship Company's line. The order calls for beautiful. They enamel on metals, wood, cloth, plates, goblets, pitchers, tankards, bowls, spoons, knives, forks etc., and the value of the goods furnished will amount to upward of well, treasurer and secretary, and Mr. Benj. \$250,000, there being 30 steamships to be supplied. All these goods are to be finished up in the very finest quality, hard solder being used.

Mr. C. Burgess, of Portsmouth, Ohio, claims that by a mixture of fined cast iron with soft gray cast iron he makes a new compound iron specialty being thin circular saws for sawing as specially suitable for chilled or ordinary castvaluable hard woods. The sizes run up to six ings. By the adaptation of an ordinary gas, puddling, closed or reverberatory furnace, and twelve gauge. His buildings are two stories, the employment of mineral coal therein, he 250x40 feet, to which he has recently added one produces a fined or partially refined cast iron for use in the foregoing process; and by a fur-ther continuation of or addition to the fining process, he claims to convert cast iron direct into steel, in a common puddling or other suit-The Columbus Machine Company have re-cently occupied their new machine shop, which ically.

The Pennsylvania Railroad is now running , between Pittsburgh and Philadelphia, the fast est train which is run for so long a distance on dry, 70x90 feet, with two cupolas, 44x48. The any railroad in the country. It is the "Day office will be a handsome structure, 40x60, two Express," leaving Pittsburgh at 7.45 a. m., and stories, with a bell tower. The work of the arriving in Philadelphia at 6:40 p. m. There are two stops made, at which the engines are changed, at Altoona and Harrisburg, the former the Licking Iron Co., at Newark, to run a 15 utes, so that the train actually runs this diston furnace, having a 60 inch blowing cylinder, tance in ten hours and one-half, or an average of one mile in considerably less than two min utes. The three runs made without stoppages are respectively 117, 132, and 105 miles, each being quite a long continuous run.

It is announced in West Virginia papers that river bank, directly opposite Carondelet, and a company with a capital of \$300,000 bas been terial at Huntington, in that State. This is one be two blast furnaces, each 60 feet in hight, 17 of many evidences of the tendencies of capital East St. Louis and Caroudelet railroad runs and especially in Virginia. During the last Icu through the property, also a narrow gauge road years a great deal of mineral lands in the Virginias have been sold to foreign and New York expected to be in operation early in 1875, and capitalists, and broad foundations are laid for extensive industries.

> The Cleveland (Eng.) iron stone mine proprie tors announced to the strikers that they would enforce a greater reduction than 121/2 per cent. if the miners did not return to work by the 9th inst. It was thought at the date of last advices that the men would not yield, and that the dispute must be disastrously prolonged. The London Times of the 5th inst. says: "It is esti-

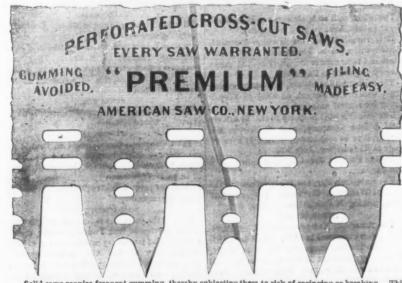
# H. W. PEACE,

#### OF ALL SAWS

FACTORY, WILLIAMSBURGH, N. Y.

### AMERICAN SAW

TRENTON, NEW JERSEY.



Solid saws require frequent gumming, thereby subjecting them to risk of springing or breaking. This is especially the case with cross cuts having Patent Toeth. In the perforated saws all gumming is avoided and the teeth are easily kept long and in proper shape, saving files, labor, expense and sexution As is well known, our saws cut faster, smoother and easier than any other,

### MOVABLE-TOOTHED CIRCULAR SAWS AND SOLID SAWS OF ALL KINDS.

### Hankins' Elliptic Forked Saw Frame.



Patented June 28th, 1870. The annexed engraving represents Hankins' Elliptic Forked Saw Frame, which commends itself to the trade for its simplicity of construction. The Forked Brace being all in one piece, without any center bolt, secures for the Frame great strength and durability. These Frames are put up with my best Webs, marked "No. 40, Harvey W. Peace."

### HARVEY W. PEACE,

**VULCAN SAW WORKS.** WILLIAMSBURGH, N. Y.

J. FLINT & CO. Manufacturers of all kinds of SAWS and PLASTERING TROWELS.

ROCHESTER, N. Y.

Dietrich's Patent Wood Saw. Guaranteed the strongest, lightest, easiest to strain or tighten and best braced wood saw made; also to give perfect satisfaction.

Dietrich's Patent Double Handle Rip Saw. All will readily see the benefit of this useful invention.

J. Flint's Patent Plastering Trowels. The best made and finished Trowels in the world. We make four grades of Plastering Trowels, from the best to the cheapest.

Our patent method of grinding hand saws makes them superior to any in the market. in the market. Send for Illustrated Price List.

### YALE LOCK MFG. CO.

Office and Works at STAMFORD, CONN., Salesroom 298 Broadway, N. Y.

In addition to their line of Celebrated Locks, would particularly call the attention of the Hardwa trade to their extensive manufacture of

### OKNAMENTAL REAL BRONZE, HARDWARL,

Linstrated Catalogues of which will be furnished on application

These goods are equal to the best in the market, while their prices are very favorable.



### GEORGE GUEUTAL & SON,



39 West 4th St., New York.

Wood Screws, Steel in Sheets, BAND SAWS, TOOLS FOR BRAZING, &c.

Bed Screws, Pin Hinges, and Wire Nails a Specialty.

### E. M. BOYNTON,

80 Beekman St., N. Y.

Manufacturer of



V tooth



This is produced by dressing the two points of my M tooth, to cut in line so that the outside B, C, has four times the space of the slant edge behind it, or from I to 5, while slant has space from I to 2, the inefficient slant edges are thus practically concealed and do but slight surface cutting, while B, C, edges cut and clear sizaultaneously.

taneously.

For Catalogue and additional information ad-

E. M. BOYNTON, 80 Beekman Street, New York,

# E. M. BOYNTON,

80 Beekman Street, New York,

SOLE AGENT.



Accuracy in Thickness.-My a, gridding off the thick places upon he fore the thinner parts are reached, and when is removed BALANCES PERFECTLY, which positive of the right accomplishment of the

Hammered.-Great care is taken that leave my works without due attention I am sole proprietor and manufacturer of the cele-brated "Challenge" Cross-Cut Saw. Price Lists of all kinds of saws sent on application.

# WHEELER, MADDEN

CLEMSON,

of every description, including

Circular, Shingle, Cross Cut, Mill, Hand, Roberts' and other Wood Saws, &c., &c

Wheeler, Madden & Clemson. FACTORIES:

Middletown, Orange Co., N. Y. BRANCH OFFICE:

97 Chambers Street, New York.

### BRUNDAGE FORGED HORSE NAILS.

BEST NORWAY IRON, by BRUNDAGE & CO. Sold by WHEELER, MADDEN & CLEMSON Middletown, Orange Co., N. Y.

### E. C. ATKINS & CO., Indianapolis, Indiana,

Saw Manufacturers.

## Best Cast Steel Patent Ground Saws



Best Patent Handle in use. anniactory and Office-Nos, 210 212, 214 need 216 South Illinois Street.

### WM. McNIECE, Excelsior Saw Works.

515 Cherry St., Philadelphia. Manufacturer of

Extra Cast Steel Saws of every description, Pat. Screw Socket Pole Pruning Saws Patent Screw Socket Edging Knives, Patent Screw Socket Scuffle Hoes, and Patent Screw Socket Paper Hangers' Scrapers,

Mowing Machine Sections of all pattern constantly on hand.

## THOS. PHILLIPS & CO

## Lead Kettles for Acids to Cleanse Wire, &c.

OFFICE AND WORKS,

JAMES OHLEN. 75 to 81 S. Main St., Providence, R. I.

# BROTHERS,

## GREENFIELD TOOL CO.



Cutlery.

ESTABLISHED 1852.

### NEW YORK KNIFE CO.

MANUFACTURERS OF SUPERIOR

### Table & Pocket Cutlery,

WARRANTED TO BE MADE OF THE BEST MATERIAL.

WALKILL RIVER WORKS,

Walden, Orange Co., New York.

THOS. J. BRADLEY, President.



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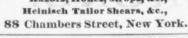
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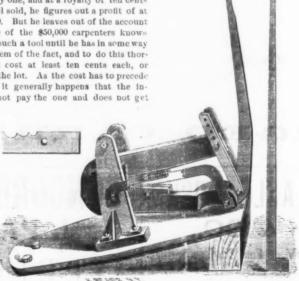
SHEEFIELD.

Improved Iron Cutter.

The accompanying cut illustrates a new iron cutter which has lately been put upon the market, and is meeting with a ready sale. With a machine costing \$75, one man can cut \$\frac{3}{4} \times 4 \text{ tinch, or 1}\frac{1}{6}\$ inch round and square iron, the same machine cutting all varieties of round, square and flat iron up to the sizes mentioned. Both jaws of the cutter move alike, there being the same pressure up as down, so that when the iron is cut off there is not the slightest jar or recoil, and but little strain upon the machine.

Improvements in mechanics' tools are being made much faster than mechanics are generally aware of. Inventors come to us almost daily with their improved tools, many of which are really valuable, but few of which ever come into use, for the reason that the owner is not able to meet the heavy expense of making his invention known. If it is a new level, the inventor calculates that every carpenter in the

invention known. If it is a new level, the inventor calculates that every carpenter in the land will buy one, and at a royalty of ten cents on each level sold, he figures out a profit of at least \$50,000. But he leaves out of the account that not one of the \$50,000 carpenters knows that he has such a tool until he has in some way informed them of the fact, and to do this thoroughly will cost at least ten cents each, or \$50,000 for the lot. As the cost has to precede the profits, it generally happens that the inventor cannot pay the one and does not get



IMPROVED IRON CUTTER.

so large iron, and do it so perfectly, until they see it done. Made and sold by Miller's Falls Co., 78 Beekman street.

#### PHILADELPHIA CORRESPONDENCE.

PHILADELPHIA, June 22, 1874. Although by all ordinary rules we should expect the usual summer dullness now, the prospect of the adjournment of Congress, due at this writing, has had a perceptibly beneficial effect upon general trade, and to it is probably due the late sport in iron. Senator Thurman, in one of the million speeches on the currency, struck the keynote of every possible, real and permanent improvement in our present financial, commercial and industrial condition, when he desired "to make the people stop talking about what kind of money they were going to have, and go to work and earn it." A large portion of the distrust and depression incidental to the late panic has come of the fruitless and wordy discussions of what might or might not be likely to happen. As it is now, we will, within six months, forget there has been a panic, and, very possibly, before another Congress meets, be very much nearer to specie payments, through increased exports and bountiful crops, than any legislation could have brought us. Indeed, the history of the world shows that with scarcely an exception financial enactments, as a means of accomplishing a given end, are

lamentable failures. Peel's celebrated Currency Bill nearly bankrupted England; French and German legislation at different periods have had like effect, and we never had in this country an enactment upon finance which did not work precisely the converse of the expectation of its advocates. The sole salvation of this country or any other is in sole salvation of this country or any other is in the page of history. Some four or country or any other is in the page of history. Some four or country or any other is in the page of history. Some four or country or any other had a patent, is adopted. the industry of its people, and all public discus-five years ago an attempt was made to organize sions of money questions sadly interferes with those interested in the various branches of the this. After this short sermon on the threadbare topic of the day, I am at liberty to devote

my space to more interesting matter. Mr. J. Blodget Britton, of the iron masters' entitled: "The variable character of the ores selecting average samples for analysis. "This circular contains more practical information than half the treatises on the metallurgy of iron, and should be not only in the hands of every iron manufacturer, but of every furnace manager in the country. The former will probably receive it through the liberality of the author, and they cannot do better than transmit it at once to the managers,

It is not often that we are called upon to notice English inventions adapted to American uses, but the high price of coals abroad has set the inventive British mind to work, and we must courteously concede that an English invention is nothing if not practical. The increasing popularity of open grates for home and office use, and the development of the extensive deposits of excellent Cannel coal in our country of lots makes the acticle under notice. 

the other. In this view of the case, we are always glad to notify our readers of new inventions when they seem to us of real merit.

These iron cutters appear to be a new departure in that line of tools, doing a much larger range and much heavier work than any other machine hitherto sold at the same price. Few people will believe that a machine weighing only 300 lbs., and worked by one man, will cut

one of the best informed manufacturers of this country in this line, and it is to be hoped may be speedily introduced among us.

The trade news of the week is very little. The Pennsylvania Company, managi g the leased lines of the Pennsylvania Rafiroad Company, held the annual meeting in Pittsburgh last week, at which Col. Scott presented the figures for 1873, which were as follows: Total net earnings of the different rafiroads leased, \$6,578,170-15. Net profit to the Pennsylvania Company, after paying all expenses, tents, interest, etc., \$1,238,310, out of which have been paid dividends to the amount of \$570, (0), leaving the comfortable balance on hand of \$668,310. During the year the Fort Wayne Road has been relaid with steel rafis to the extent of 6000 tons, and 28 per cent. of new ties, while the Clayeland, and Pittshurch has received 85. 6000 tons, and 28 per cent. of new ties, while the Cleveland and Pittsburgh has received 35

the Cleveland and Pittsburgh has received 35 per cent. of new iron rails.

The Franklin Institute meeting for the month produced some interesting papers on cognationics, and decided some important routine matter relative to the fall exhibition.

The Berks county Railroad, a new line from Reading to Statington in the Lehigh Valley, thus giving another outlet to Schuylkill coals, was opened formally on the 20th inst.

As an evidence of the fraternization between labor and capital, on the currency question.

As an evidence of the fraternization between labor and capital, on the currency question, I clip the following letter lately sent the New Albany Standard for publication:

"to all who this may consume we the working men and mecanicks has held a meeting and if the capelest doe not start up some bissness so we can make a onest liven we will be ob'ldge to take it there was 100 men rose up in this meeting and sed they was starvin so gentle men you had better sercelate your money ore we will be obligge to curcelate it fur you we cant set down and see our familyers suffer so open out."

### John Roach.

The Nautical Gazette save:

ship building industry into an association, which something practical toward awakening an interest in this direction. A few meetings were laboratory here, has lately issued a sheet circular held, and the fact was soon developed that of iron, limestones, etc., with directions for afraid that his neighbor might possibly gain

larly, the insidious foreign enemics of our ship ing interests. At last his power was felt, his clated. His promises were made good in his acts. His palpable productions, his handiwork, gradually kissed the waters; his ships demonstrated that American ships could be built in American shipyards; he proved that his labors were not in vain; he showed the enemy that the navigation laws of the country could not be repealed, and that honesty of purpose, strict attention to business, and fidelity, would, in time, be rewarded. This country to day, and especially the shipbullding interest, owe to John Roach a debt of gratitude they can never repay. He has by no means finished his labors, nor achieved the fame yet in store for him

His aim is not the money his work will bring him, but the proudest ambition of his iffe is to see our fleets outnumber those of the world, and Great Britain especially. We venture to say that there is no journalist in this country to-day who has had better opportunities of watching the movements of Mr. Roach than the writer, or who has been more intimate with him, or has had better opportunities of knowing the true motives which have actuated him. step by step, as he has pressed onward in his struggle-for it has been a struggle, and a terrible one. Never have we heard him chide his competitors or his enemies, but he has sorrowed because they did not act in concert with him, to share the glory, and, if you please, the profits, of this war against the foreign shipbuilding interests, and we have reason to know that to-day he stands ready, as he did years ago, to join heart and hand with his rivals, to work in concert for a larger, a freer and more rapid development of the production of ships than has ever been known in this country.

At this time there should be no feelings be tween the ship builders of this country-and the whole body, from Maine to Texas, should be as united as the various parts of the completed ship. The man who has the best facilities for the construction of vessels certainly has a right to expect the best contracts, and he who has the best machinery for building quickly and cheaply will, of course, make the most money. These are plain, stubborn facts, and just ones as well. But to return to the subject of these notes: Whatever prominence Mr. Roach has obtained, whatever success he has gained, it has all been the results of his own efforts, and none ahould be envious of his honors or his position but strive to emulate his course, and, if possible to go up still higher on the ladder of fame. We write this from a purely disinterested stand-

point. It is a true record of fact.

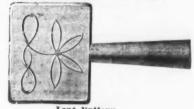
Mr. Roach had but few advantages and but few friends and scarce any encouragement; but he has thriven amidst obstacles and discouragements, and to-day may be looked upon as a man of marked success, wholly the result of his own efforts. At home he is the embodiment of all that makes a man worshipped by those who know him best. He is the best of husbands, the kindest of fathers, and the warmest of friends. In business he is sharp, quick, of wonderful perseverance, of indomitable energy, honest and square dealing, earnest and unwavering in his methods to gain his ends, and having set himself to the task of reviving our ship building interests, it is impossible to see how he can fad.

Railways without Switches, Turnouts, or Crossings .- Mr. Charles Jordon iconfounder, Newport, Moumouthshire, proposes to stop one extensive source of railway accidents in what is certainly a thorough manner. He proposes to make the up and down main lines without the usual switches, turnouts and crossings, the lines being continous from end to end, and to work such road by transferring a train or trains at stations, or where shunting is necessary, or at junctions with other railways, from the main line to the adjacent siding, by lifting the train bodily from one line to the other The lifting will only be an inch or two, and the bydraulic apparatus as now constructed will nake nothing of the weight, while as to time. Mr. Jordon calculates that a few minutes will suffice to transfer a train from one road to another without disturbing a single passenger. The whole work of a station, as regards the hydraulic apparatus, may be done by one, or at We have no reason to laud the acts, writings large stations, two lads. The time saved in or sayings of John Roach, in reference to the shunting will be very great, and the risk of col-

The Limits of Great Cities .- The London "Builder" thinks that the time will soon should, by systematic and concerted action, do come when the question of the extreme limit to which cities can be extended will be solved. London has now an estimated population of 3,400,700, and the question suggested by the nothing could be done, because everybody was "Builder" arises from the estimate that 600,000. 000 cubic feet of carbonic acid gas are expired some advantage which the other might not in London every twenty-four hours by human share in, and the whole affair fell to the ground. beings alone, and that 14,000 tons of coal are Jealousy, envy and bickerings marked all con- daily consumed there, a great portion of which versation upon the subject, and the prospect is cast into the atmosphere in the partially volalooked gloomy. Nothing daunted, John Roach tilized form of smoke. But, fortunately for the struck out holdly and alone, determined to "do dwellers in London, and unfortunately for the or die." His every move was watched, his theories of croakers, there are miles of fresh air every act was commented upon, and even ob- above the city constantly replacing the vitiated stacles, which seemed insurmountable, were atmosphere of the streets. London may be exput in his way. He heeded them not, but tended indefinitely with, in all probability, no faithfully and earnestly pushed on. He en- perceptible change in the life supporting power larged his field of operations, he expanded his of her atmosphere. The registration of births power and influence, he was faithful to himself and deaths in England is so thoroughly made and to the great aim he had in view-the re- that the estimates of population based thereon atoration of our shipbuilding interests. Jeal- very nearly agrees with the actual count from ousy warmed into hatred, and John Roach the census returns, and such registration has as

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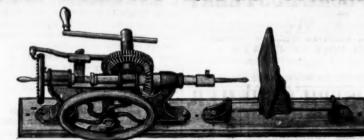
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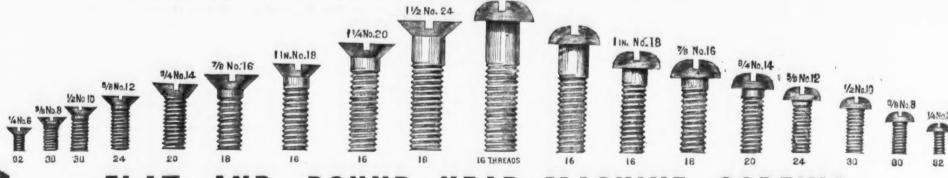
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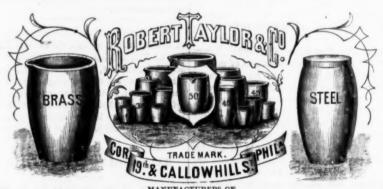
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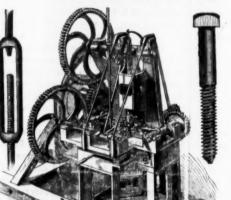


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New York, Thursday, June 25 1874.

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CHANGES CHURCHILL & Co., American Merchants, 28 Wilson Street, Finsbury, London, England, will receive subscriptions (all postage prepaid by us) at the following prices in sterling: Great Britain and France, 25/; Germany, Prussia and Beigrum, 33/4; Sweden, 56/. They will also accept orders for advertisements, for which they will give prices on application.

The Subscribers will confer a favor upon the Publisher, by reporting at this office any delinquency on the part of carriers in delivering The Iron Ane; also, the loss of any papers for which the carriers are responsible. Our carriers are instructed to deliver papers only to persons anthorized to receive them, and not to throw them in hall ways or upon stairs; and it is our desire and intention to enforce this rule in every instance.

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#### The State of Trade at Home and Abroad.

There are, as yet, no signs of the prom ised improvement in the iron trade of the United States, and it must be confessed that present indications warrant the belief that the depression will continue for some weeks longer. The stocks of pig iron in makers' hands are largely in excess of the demands of consumers, and as there is no speculation they continue to increase slowly, notwithstanding the restricted production. We hear of furnaces blowing in from time to time, but more are going out of blast, and at least two-fifths of the fur naces in the country are standing idle. It is impossible to quote prices with the market in this condition, but in general terms it may be said that the few buyers have things pretty much their own way. Bes grades of Lehigh gray forge have lately been sold below \$25 at furnace; Schuyl kill irons at \$24 for gray, and \$20 for white; Susquehanna gray at \$22.50 to \$25 at furnace, and good No. 1, f. o. b. at seaboard at \$28.50. At Pittsburgh large sales months, but the tendency of prices in the market is pig iron fairly quotable at a price he better, mill owners having orders or iron be carried on at a profit.

expecting them could not make a mistake in laying in well selected stocks in advance of better times. The market for bar iron is still unchanged, but a little more activity is noticeable at the mills. The Philadel phia mill price is 2.8c. In Central New York and the interior of New England 3.25c. is a fair average, while in this market the price is about 8c. The mills have not accumulated any great stocks since the panic, having run on half time on an average, while consumers' stocks are known to be unusually small throughout the country. There has been some activity in bar iron at Pittsburgh this spring, but at prices as low as 2.5c. in some instances; while with an increasing pro duction and a decreasing demand, there is a pressure to sell, and considerable lots have changed hands at 2.25c. to 2.4c. Labor is generally accommodating itself to the changed condition of affairs, and while we hear of some strikes, the workingmen are more reasonable than was expected. The only feature of the situation which affords reasonable grounds for congratulation, is the absence of anything like de moralization in the iron trade. The furnace and mill owners have in most in stances suffered heavy losses, but they have done the best they could under the circum stances, hoping for better times. We have had but few failures of importance, and while more are likely to come before the end of the summer, there is no danger of a panic in the iron trade. The improvement will find makers in condition to take advantage of it, and we have no doubt they will manifest the same judgment in gradu ally increasing production that they have shown in decreasing it since September.

Abroad, the situation in the iron trade is

quite as bad as it is in this country. In

England the business is in a wretched condition, and wholly demoralized. Many failures are reported in the iron and coal trades, as well as in other important branches of manufacturing. The two causes which, in Great Britain, keep the iron trade in a critical state are the high price of fuel and the constant wages dis-"The great difficulty," says a leading trade journal in a well considered article on this subject, "is coal and coke. 'The iron trade can never recover until the fuel, which forms its foundation, can be had at reasonable rates. It is hopeless to expect a return to the prices of 1871. 'In spite of all the new coal fields which have been opened up; in spite of all the inventions for economizing coal and util-'izing the waste heat of furnaces, we are certain that coal can never again be 'bought at 1871 prices. There are at this moment twenty-five thousand colliers on strike, yet the supply of coal is more than equal to the demand. The clould is black, and it overshadows the great iron producing districts of England and Scotland ; it darkens the steel and cutlery capital of Hallamshire; and 'in the Black Country, and in the younger Black Country further north, it causes 'sorrow and suffering. If in spite of closed pits in entire districts, and half-'time in nearly all, coal accumulates, and the price falls, while trade droops from 'day to day, only one result is at handsuch a general and sweeping reduction as shall once more bring a tide of reasonable and healthy business-no more flood tide to bring its subsequent depression and distress, but a season of moderate activity, in which the British ironmaster may once more fairly compete with his foreign rivals. The wages dispute is a cloud no bigger than a man's hand. This fuel difficulty overshadows it altogether. Once coal has fallen to its real value, the other difficulty will die away, and the iron trade of England resume its place in the commerce of the world. But there will be much ground to re-conquer. Our foreign rivals have shot ahead, and have planted their foot very firmly in many lands where England once reigned supreme." In Scotland there is no material improvement, although our latest mail ad vices show a slight advance in prices of warrants. There is comparatively little pig iron held in stock at Glasgow, the quanity stored by Messrs. Connel & Co. being only 25,225 tons at May 20th (a decrease of 4689 tons on April 30th), while the Forth and Clyde Canal Company have none. Makers of finished iron cannot secure many orders, and those which they do get are such as to barely enable them to make ends meet. The struggle between the ironnasters and their miners still continues, with no prospect of reaching a satisfactory ettlement for many years to come.

The latest news from the the Continent s somewhat more favorable, an improve of gray forge have been made at \$27, four ment in the demand being reported. In Luxemburg, where the stocks of pig iron such an extent lately that consumers are which would cover the cost of production, commencing to buy. But in neither Bel- veracity. and as any change must be a change for gium nor France can the production of pig

#### The New Currency Bill.

At the eleventh hour, after all hope of satisfactory currency legislation was abandoned, and the people of all classes were awaiting with impatience the hour fixed for adjournment, Congress passed the bill reported by the Conference Committee, and the President signed it almost before the ink was dry. As the text of this bill is given in another column, we need only briefly summarize its provisions in this place, as follows:

1. It sanctions the increase of the legal tender circulation from \$356,000,000 to \$382,000,000.

In so doing Congress has made a virtue of necessity. Whatever the wisdom and propriety of the course adopted by Mr. Richardson in issuing \$26,000,000 of the so-called reserve of \$44,000,000, the amount thus issued could not be retired at this time without causing wide-spread commercial distress. We are certainly in no condition to bear contraction, and unless the legal tender circulation were fixed at \$382,000, 000, the Treasury would have to recall the \$26,000,000 in circulation without the authority of Congress. This may be called ex post facto legislation, but it was necessary under the circumstances, and Congress could not have done otherwise without leaving in the hands of the Secretary of the Treasury dangerous discretionary powers, which might or might not be used wisely and honestly.

2. It substantially abolishes the difference be-tween greenbacks and national bank notes, and by reducing the legal reserves which the na-tional banks are required to hold to 5 per cent., adds to the active circulation about \$30,000,000 hitherto locked up in the vaults of the banks.

This is a wise provision and one which reforms an evil which should never have existed at all. Probably the banks will keep a voluntary reserve during most seasons of the year equal to that hitherto re quired by law, but in periods of stringency they will be able to accommodate the merchants without having to suddenly contract their credit to make good their re serves, or reach the limit at which all lending must cease. In other words, the panic line is abolished, and the money lenders of "Poverty Corner" will no longer be able to exact their pound of flesh from the merchants who need money and cannot get it from the banks.

3. It provides for the transfer of \$55,000,000 nal bank circulation from the East to the West.

This is not likely to prove of much conequence as a financial expedient, since, if carried out, it would merely transfer the privilege of issuing notes without any actual transfer of circulation. The national banks would have to buy bonds in the East at 115, and on these they would receive notes to the amount of 90 cents on the dollar, thus temporarily increasing the circulation in the East and diminishing it in the West. In other words, it would cost the West \$70,000,000 to procure its \$55,000,000 of bank notes, and the Eastern banks would find the transfer greatly to their advantage, as it would considerably increase their ability to loan money, and leave them free to reorganize under the State law and conduct their business without circulation, as many of them are anxious to do. Taken as a whole, however, the bill is a great deal better than any we had reason to expect from Congress, and we are thankful for the relief it will afford.

### The Legal Status of Price Lists.

The statement of the attorneys of Messrs. Hall, Kimbark & Co., of Chicago, in reply to the statement of the attorney of Mr. Geo. D. Hall, of St. Louis, which appears elsewhere in this issue, concludes, so far as we are concerned, the discussion of one of the most interesting cases which has been before the courts for many years. We have given it so much space in our columns because of the importance of the principle involved to the trades we represent. In our editorial discussions of the case we have endeavored to regard it disinterestedly, and while we have affirmed and reaffirmed our opinion that Mr. Hall had no legal or moral right to damages from Messrs. Hall, Kimbark & Co., because of the refusal of that firm to fill his order for 3000 pairs of seat springs at \$1 per pair, we have given his attorneys all the space in our columns they desired, and have let them state the case in their own way. We cannot, therefore, be accused of unfairness. Our own opinion in the matter was based upon best information at our command at the time it was formed, and we have seen no reason to modify it as the discussion progressed. Our reason for giving notice that the discussion is terminated, is that both sides have had a full and fair hearing, in which they have set forth all the facts likely to be of public interest, and that, if prolonged, it would probably degenerate in a personal dispute between attorneys West is steadily downward. In no Eastern are enormously large, prices have fallen to upon points which, as the case now stands, would be likely to involve the question of

As we have before said, it is greatly to

status of price lists is substantially this: only 5,144,132. Any merchant who shall send out or distribute price lists, stating the price at an adequate idea of the drain upon the rewhich he holds his goods, and the terms sources of Europe incident to these colosence between the price of the goods cerned-are large and wasteful consumers. hitherto accorded him by established and lishments. recognized commercial usage, to refuse orders which he may not wish to fill, provided such orders are received from perons to whom he has sent a price list.

the law as interpreted by Judge Treat and much hope of soon witnessing the dawn enforced against Messrs. Hall, Kimbark & of the era of universal peace on earth for Co. by verdict of the jury. That it is an absurdity upon its face, we do not need to tell our readers.

#### The Cost of Standing Armies.

The proposition to gradually reduce the tanding army and navy of the United States until they shall be mere skeleton organizations-the nuclei of an army and navy, to be recruited, in case of necessity, by the enrollment of volunteers or by drafthas given rise to a good deal of discussion, and the policy of Congress has been criticised with more severity than intelligence. In our judgment, it is the true policy of the government to keep no more soldiers under arms than it actually needs. Every State has one or more divisions of militia, fairly drilled and ready for service at short notice on call of the several governors, and if the national government cannot rely upon the patriotism of the people to maintain its authority and execute its laws, we had better change our political system without delay. There is a point beyond which it would be unsafe and un wise to reduce our military and naval systems, but all the army we need in ime of peace is a small force of soldiers to keep the Indians on their reservations, and a nominal garrison in our permanent fortifications. A large standing army is a dangerous thing in any country especially in a republic. It creates a military power which may become formidable in the hands of designing and ambitious men, and when no such danger exists it is an incubus upon the country, withdrawing a large body of able bodied and intelligent men from the useful industries which contribute to the national wealth-a great consumer, which produces nothing and is supported upon the products of honest labor. For this reason, if for no other, we should keep our army as small as possible. The greatness and prosperity of the United States, and the welfare and happiness of the American people, will be obtained not by military or naval conquest, but by the more substantial victories of peace. The among nations is our army of skilled me chanics, commanded by enterprising manufacturers.

To appreciate the extent of the burden imposed upon a nation by the maintenance of a great military establishment, we need but look abroad at the several European countries now staggering under the weight of their preparations for a war which, if not imminent, is pretty sure to come before long, from the fact that these very preparations are a perpetual menace to the peace of Europe. England has three soldiers to every 1000 of population in Great Britain; Italy and Belgium twelve; France and Austria fifteen, and Germany twenty-one. In all Europe there are probably as many as 4,500,000 or 5,000,000 men under arms; and it is not impossible that the total is increased than diminished since then. What is lost to human progress by the withdrawal of these five millions of able bodied young men from the useful indus-

volving so important a principle, should total number of men in the United States have reached so unsatisfactory and incon- engaged in manufacturing, mining and meclusive a settlement. As interpreted by chanical industries, in trade and transpor-Judge Treat, the law defining the legal tation, and in professional services, was

But even this comparison fails to convey upon which he will sell them, shall be con- sal preparations for war. The men thus sidered as party of the first part to an open withdrawn from peaceful pursuits are in contract, which any one may close and the prime of life, and are those whose make binding in law by sending an order issue would be the flower of the rising for any quantity of said goods which he generation. As it is, the severance of may wish to buy, said order constituting family ties and the cultivation of habits the person sending it party of the second fatal to domesticity in those who enter the part to the contract aforesaid, which is army early in life, cannot fail to check the thereupon consummated, whether the natural increase of population and to enviews of the party of the first part and the courage the growth of the social evil, which party of the second part agree or not. will sooner or later vitiate the life blood of Should the party of the first part refuse to a nation and lower its standard of public fulfill the terms of said contract, he shall morals. We must also remember that the be liable in damages to the party of the five millions of men kept in idleness-at second part to the amount of the differ- least so far as any useful labor is conquoted in the price list aforesaid and their They must be fed, clothed, supplied with market value at such time as the jury shall arms and ammunition, transported and see fit to agree upon. All price lists shall housed. To supply their wants requires henceforth be considered unconditional the labor of thousands of skilled mechanics offers to sell, which every person to and intelligent tillers of the soil, while the whom they are sent may consider as productive labor of the country is further made personally to him, without any reser- taxed to pay the wages of the soldier, and vation whatever, and the merchant sending to meet the enormous expenses incident to out such price lists forfeits all right, the maintenance of great military estab-

With these facts before us, it is evident that no nation can afford to prepare for war, much less to engage in it; and were the question of cost calmly considered, This, we believe, is a fair statement of few of them would do so. We have not which so many good people hope, and of which the Geneva arbitration gave promise; but the first step in that direction is the disbanding of great armies. The maxim is as true as it is old, that evils are best avoided by avoiding the appearance of evil, and with experiences so freshly in mind as those of 1859, 1866 and 1870, the greatest achievement that could now distinguish the statesmanship of Europe would be that of conferring on the overtaxed and impoverished peoples of the different countries the blessings of universal disarmament.

> We publish in another column an article of much interest, by Mr. J. Blodget Britton, of Philadelphia, on the variable character of iron ores, limestones, &c., with directions for selecting average samples for analysis. Mr. Britton gives much valuable information, embodying the results of many years' experience in the laboratory, which merits the careful perusal of furnace man-

### HALL VS. HALL, KIMBARK & CO.

Statement of the Attorneys for the Defendants.

To the Editor of The Iron Age: Your issue of the 4th inst. contained a statement over the signature of John C. Orrick, Esq., as attorney for the plaintiff in the suit of Geo. D. Hall vs. Hall, Kimbark & Co., recently tried in this city, which we desire, through your columns, to notice. But before doing so, we wish to correct a statement made by Mr. Orrick in a former communication to your paper, which appeared in your issue of May 7th. In that statement he says: "In letter of Hull, Kimbark & Co., under date of February 17th, 1873, they admit that their c'rcular of February 5th was an offer, and that George D. Hall's telegram of the 8th was an acceptance." We think the following (which is a true copy of that letter) hardly supports his assertion: CHICAGO, Feb. 17th, 1873.

Yours of the 15th inst. is received and fully noted. Since ours of the 12th, we have received information of your breaking your contract with the Illinois Iron and Bolt Co. to accept army which will give us prestige and power the offer of Mesers. P. & W., and of your attempt to break with the latter in order to accept ours. In the light of these facts, it seems quite absurd for us to discuss points of mercantile honor with you. So far as strict points of law are concerned, we are willing to try those with you at any time.

Yours, respectfully, HALL, KIMBARK & CO.

Before proceeding to discuss the points of law made by Mr. Orrick in his last communication, we desire to refer briefly to his statement concerning the offer to make the judgment in this case \$2000. He says: " attorney, I know that he (meaning Mr. Hall) proposed to Hall. Kimcark & Co., through their attorneys, to make the judgment \$2000 in case the court decided the law for Mr. Hall and against H., K. & Co." This is incorrect. Mr. Hall never spoke to us about the matter. The facts are these: Recognizing that the case presented a clear question of law on the construcmuch larger than this. It was fully 5,000,- tion of the circular of Feb. 5th, the telegram 000 in 1871, and the total has been rather and correspondence between the parties, one or two interviews occurred between Mr. Orrick and ourselves with reference to dispensing with a jury, and agreeing upon the measure of damages, in the event the court should find for the plaintiff on the question of law above retries, for which they are to a great extent ferred to. Mr. O. claimed that \$1350 was the prounfitted by their experiences of military permeasure of damages, and we that it should be life, will be apparent when we remember only \$700. After ascertaining that we could not be regretted that a case so interesting, in that, according to the census of 1870, the agree upon the amount, and after our negotiations had closed, Mr. O. remarked, in a jocular to the first, merely stating the quantity of rags The Proposed Mechanical Laboratory way, "You had better let the judgment go for \$2000, so that you can appeal from it." We far there was no offer of one party to buy nor replied in the same vein, to the effect that he would be the appealing party. From the above Mr. O. gathers material for the statement that a in the case." So in close analogy it follows deliberate proposition was made by Mr. Hall. that Hall, Kimbark & Co.'s circulars stating We certainly never considered it a proposition. and from the manner it came we think Mr. O. did not, at the time. It was simply a part of the very common derision of an antagonists' case, so often resorted to in friendly interviews between attorneys. He further says, in the same connection: "This was before the trial, and in full view of the fact that one or the other party might wish to appeal to the Supreme The inference from the foregoing is, that Mr. Hall, in the event of a decision adverse to him, was to be benefited by such a stipulation in securing an opportunity of appeal.

Mr. Orrick is too good a lawyer not to know that, having claimed \$5000 damas es in his petition, the plaintiff was entitled to an appeal without any stipulation, even though the verdict was under \$2000.

Proceeding to the next sentence in his com munication, we find the following language: "And further, that our consent after verdict could not give jurisdiction to the court." We confess to some surprise that Mr. Orrick should, hy the use of such language, attempt to convey the impression that, by an arrangement of counsel, the case could not have been appealed, for he well knows it is a daily occurrence that verdiets and judgments are set aside by courts on account of counsel, and cases reopened for a new trial, which being done, any stipulations concerning amount of judgments or otherwise can be made, and the cause immediately re-submitted for findings accordingly. But while upon this point we desire to say, that neither your article to which he refers, nor his statement, covers the offer made by us to Mr. Hall through his counsel. What we offered to do was this: If plaintiff would set aside the judgment rendered, and re-submit the case on a stipulation for a judgment of \$2000, we would pay the judgment for \$1350, whatever decision the Supreme Court rendered on appeal, also pay to Mr. Orrick a reasonable fee for his services in Mr. Hall's behalf in the Supreme Court, together with all costs taxed therein.

This proposition Mr Orrick, after consultation

with Mr. Hall, declined. By such an arrange-

ment Mr. Hall could lose nothing, but, on the

contrary, if successful in Supreme Court, would

gain the difference between \$1350 and \$2000. It is exceedingly difficult to draw any other inference from the refusal of Mr. Hall to agree to the foregoing proposition than the one suggested in your columns, viz., "that he was afraid the decision of the Circuit Court would be reversed." The reason why we advert to this portion of the statement of Mr. Orrick is the same as that given by him, viz: simply wish, in this connection, to see that he (Mr. Hall) is not placed is a false position. And now, with reference to some of the points which his communication attempts to make upon the legal aspects of this case. Plantiff declares upon a written contract and claims damages for a breach of the same, and in proof of such contract be put in evidence the circular, telegrams, and correspondence set out and referred to in our communication published in your issue of May 7th. The only question (except to the measure of damages) which could be presented to the court under the pleadings in the case was simply this: Did the circular of Hall Kimbark & Co., dated February 5th, and the telegram of Mr. Hall in reply thereto, constitute a contract? If so, Hall Kimbark & Co. were liable, otherwise not. The only words used in the circular material to the question under consideration are as follows, viz.: "Our present price for blue seat springs is as follows : On orders for 100 rairs and over in one ship-ment \$1 per pair." The telegram referred to is: Ship me 2000 pairs 1½, 1000 pairs 1½; Jenks' seat springs at \$1. Answer." It will not be denied that the minds of the parties must meet upon all the essential elements of their negotiations before there can be a contract-there must be a distinct and definite offer of a definite subject of sale-quantity and price are essential elements of every contract. his communication. It is true that testimony Mr. O. in his communication does not meet the was taken by the plaintiff in Chicago, wherequestion presented by the facts, he says: "In by opinions of merchants were elicited as to this case Hall, Kimbark & Co. were iron mer- whether Hall, Kimbark & Co., by such usage, chants, they held up their whole stock for sale, hence the law says that when such a person and, of course, those opinions were based fixes a price upon an article the presumption is upon the construction to be given to that this is for the purpose of sale." This ja the circular. As before stated, the suit was begging the whole question. Did they, because grounded upon a written contract, and it was of the fact that they were merchants "hold up for the court to give a construction to the cirtheir whole stock for sale" to any and every person who might wish to purchase? Had they no right to choose their customers, even upon the court the duty of telling the jury though they fixed prices upon their goods? We are strongly inclined to the belief that mercantile transactions would be very infrequent are certain cases where oral testimony is adif such were the case. Again, the conclusion reached, as above stated, is a non sequitur. We most emphatically join issue upon the statement that "when such a person fixes the prices upon an article the presumption is that it is for the purpose of sale." The authorities are numerous that there must, on the one hand, be a clear and distinct offer to sell some defiuite thing or subject of sale, which offer must be unconditionally accepted, otherwise there can be no contract. The minds of the parties must meet. In the case of Smith vs. Gowdy et al reported in 8th Allen, p. 566, it appears that on S.pt. 3d, 1862, the plaintiff wrote defendants inquiring how many rags they had on hand and the prices for them. On Sept. 6th, 1862, de- gard it, and lawyers on either side who admitted fen lant wrote: "We have about a ton each. waite and colored rags, and our prices are 814 tents for colored and 7 cents for white." On Orrick the credit of saying he conceded that Sept. 9th, 1862, plaintiff replied "We will take the same was wholly irrelevant. the rage at the prices you name." The court (Metcalf J.) in delivering the opinion, says "The second letter was the defendant's reply St. Louis, Mo., June 18, 1874.

which they had and the price thereof. Thus of the other to sell." In speaking of the third prices was no offer, and that Mr. Hall's telegram ordering seat springs was the first offer and that was not accepted. Also in the case of Staymaker vs. Irwin, reported in 4th Wharton Repts., p. 369. The defendants wrote plaintiff, Feb. 15th, 1836, stating their price for, iron for spring delivery, using these words, "Our terms are \$30 per ton," etc., and inviting plaintiff to send in an or ler. In due course of mail plaintiff wrote defendant as follows: Your favor of the 15th inst, was duly received. in which you inquire what quantity of metal we will take for a ring delivery; in reply to which we say we will take 3 ark loads, if de livered in that way, which we would greatly pre fer, or 150 tons if delivered by canal; the term proposed we will comply with." The Cour (by Sergeant, J.) in delivering the opinion says The last letter did not complete the transact tion, it suggested a new proposal, and required another communication from the defendant to produce that effect. It might not suit the defendant to funish 150 tons in the spring, and ro one but himself could say that it would He has not said so." So in the case under consideration Hall, Kimbark & Co. never had said that they would furnish Mr. Hall with 3000 pairs seat springs. It certainly cannot be claimed that the circular of February 5th ssued by Hall, Kimbark & Co. to the trade generally throughout the country, could be any more of an offer than if they had written a private letter to Mr. H., as was the fact in the ases above cited. There are many other cases in the books of similar import to the above which we might refer to if space permitted.

The gentleman further argues that the lan guage used in the circular, to wit: "Our pres ent price," etc., is an offer to the person to om it was sent, and that if that phrase "be held not to be an offer, then a fraud would have been perpetrated upon the public, and many dealers would have been deceived and expended their money for telegrams for nothing.'

The circular, fairly construed, was nothing but a price list, sent out for the information of Mr. Hall's telegram clearly shows that he did not construe it as such, else why the word "answer" appended thereto. We are unable to perceive where the "fraud" upon the public comes in, and particularly toward Mr. Hall. The evidence, as stated in a former communi cation, shows that 5000 of these circulars were issued. Let us suppose that one-fourth of those to whom they were sent had made similar or ders, if the theory of the counsellor be correct, Messrs. Hall, Kimberk & Co. would have been obliged to furnish 3,750,000 pairs of seat springs at \$1 per pair. The jury found that they were worth, on the 14th of February, 45 cents more than the circular price per pair. If that was a fair price, Messrs. Hall, Kimbark & Co. would have sunk the modest sum of \$1,687,500, and upon the theory that they intended to incur that liability toward the public, for unless they did so intend there was no meeting of minds, and hence no contract or liability to any person receiving the circular. We are unable to see the distinction between the case made by the circuar and the publication of a price list in a news paper which a merchant mails to the trade. The cases are parallel, and if the argument of the gentleman be correct, the merchant who thus advertises is bound to sell to the extent of his entire stock at the price named, no matter what advance may have occurred.

Again, there was no definite quantity named in the circular. The language is: "On orders for 100 pairs and over." The law says that the quantity must be definite. Was it in the minds of the parties sending that circular, and does it bear the construction that parties might order such quantities as they chose, without further treaty or negotiation ?

And now with regard to the admission of evidence concerning "commercial usage," about which Mr. Orrick has so much to say in bound to fill the order of Mr. Hall, cular and telegram, and the opinions of witness could not be received. The law imposes the legal effect of those papers. There was no latent abiquity in the language used. There missable to explain the meaning of terms employed; for instance, A offers to sell B 500 bush els of good barley at a price named. B replies that he will take that quantity of fine barley at that price. In suit by B against A for refusing to deliver the barley, it is competent to show that there is a distinction known to the trade between good and fine barley, but in the case under consideration no such question arises; it seldom occurs that any two circulars are worded alike, and hence there can be no established usage among the trade as to the meaning to be given to such language as that employed in this case. Had such testimony been received the court must have instructed the jury to disresuch testimony without objection would have been justly answerable, and here we will do Mr.

> LEE & ADAMS, Att'ys for HALL, KIMBARK & Co.

at the Stevens Institute.

We have received the following letter from letter the court says: "This was the first offer Prof. Thurston, which will interest many of

STEVENS INSTITUTE OF TECHNOLOGY,

STEVENS INSTITUTE OF TECHNOLOGY,
DEPARTMENT OF ENGINEERING,
HOBOKEN, N. J., June 18, 1874.

Editor of The Iron Age: Dear Sir:—Your issue of the 14th instant has just been brought me, and my attention called to the editorial in which you so kindly refer to the project of a mechanical laboratory, which has been generously assisted by the trustees of the institute. In regard to the method of securing contributions of apparatus and funds, I would say that no special effort will probably be made.

The plan is intended to meet an evident want, and it is anticipated that engineers and manufacturers who see the advantages to be secured, will not require much solicitation when the

will not require much solicitation when the esent dullness of trade shall have passed

As an illustration of the favor with which As an illustration of the favor with which the plan is regarded. I may state that I received, a day or two ago, from a well known manufacturing firm, a copy of their illustrated circular, with a request that I would select from it any and all machinery which might answer my purnose, and it should be forwarded free of cost. Still further assistance was promised when the completion of new designs should enable these public switted continues. This is public spirited gentlemen to, offer it. This is not the first, and I presume that it will not be the last, un olicited contribution to the proposed last, un olicited contribution we have mechanical laboratory. Very respectfully, R. H. Thurston.

The Variable Character of the Ores of Iron, Limestones, etc., with Directions for Selecting Average Samples for Analysis.

There are few, if any indeed, of what may be called workable mines of iron ore that produce mineral of unvarying composition. Some of the richer magnetics of apparently igneous origin found in veins traversing the denser strata, approach nearest to uniformity; but they are far from being strictly homogeneous

The leaner ores vary exceedingly in the relative proportion of their constituents. variation throughout the mine may, it is true, be very nearly constant, and so give to the mass or whole some one characteristic quality; and this, except when the ore exists in distinct or irregular or broken strata, is pretty generally the case. Thus, we find the yield of one mine always producing a red short iron, and that of the trade. It was not intended as an offer, and another a cold short iron, etc. But if we select. say a dozen pieces of ore from as many different parts of any one mine, whatever may be its general constancy, we will find upon strict analysis that no two of them are precisely alike in mposition. One piece may prove rich in iron, and another lean. A third may contain sulphur, phosphorus, or some other substance in exces while a fourth may contain but a trace; and so with each of the remaining pieces, the shades of difference being very slight between some. but very marked between others. Even several parts of a single piece no larger than an applemay prove so materially different in composition as to make it seem as though they had been obtained from entirely different mines.

The eye can never detect all the various con stituents of an ore, and, except to a limited extent, is a most deceiving guide. This being the case with the great majority of ores, it must be evident that the analysis of any one or two small lumps or pieces should not be depended upon for ascertaining the value of the mass in the mine for general furnace use. Nevertheless, it is a very common practice with furnace men, when they wish to obtain a chemist's report upon an ore, to send merely a single piece, and that, too, a very good one, perhaps the cleanest and handsomest they were able to find, in fact, a cabinet specimen. By doing so they of course obtain a very favorable report, but one of no practical use whatever to them-worse than worthless, for it will certainly mislead if depended upon.

The true value of an ore can be learned with certainty by proper quantitative analysis, but only when the sample analyzed is strictly an average one; and such a sample may be obtained very easily by carefully following a few plain directions. Select (let the manager himself) from the mine, stock heap, or supply at the tunnel head, as may be most convenient, a pound or so of each of fifteen or twenty or more different parcels, hard and soft, good, bad, and indifferent, with a fair proportion of the accompanying dirt or trash, selecting precisely the kind of material that would be put into the furnace. Then reduce the several parcels one by one separately to coarse powder. which is best done in a goodly sized clean cast iron mortar, and without sifting or drying, take about a common wineglassful, or a little less of each, and throw it into any suitable vessel, a clean, dry bowl or wash basin, for instance, and then what is in the basin stir well and mix together, and afterward throw the mixture back again into the mortar, and more thoroughly mix by a little trituration. Of the triturated mass reserve two or three ounces which will be more than ample for all ordinary analytical purposes, and a convenient quantity to be sent off by mail. The remainder may be thrown away.

Where the intention is to use together ores from different mines, that is, to work the furnace upon a mixture, a practice which cannot be too highly recommended, and which, in many localties, is slways pursued, an average sample of each kind should be obtained, and the several samples be analyzed separately.

By taking a little intelligent care in the first instance, and learning accurately the composi tion of the raw material intended to be used. all guess work, which is another name for bad work, in the subsequent mixing of the ores and working of the furnace, may be obviated.\*

\*Beyon't all question, as a conered rule, a fur-nace will work mo e uniformly and to better ad-vant ge with several ores mixed together than with one, for the reason that the different constituents assist in flucture each other. The mass of such mixture is rendered more fusible; and less read-itux and fuel are requisite.

Limestones.-These are less variable in their composition: but it is unsafe to depend upon the analysis of any single piece. Better select eight or ten or more separate parcels, and make a true average sample. If, however, the breast in the quarry shows strata or seams of stone of evidently different composition, and which can be worked separately, it is better to have samples from each seam analyzed in order to carn which is the best. The alternate use of stones of widely different composition will, as a matter of course, cause irregularity in the working of the furuace, as well as in the mality of the iron.

Thirty-five average samples of limestone which had been found by actual use to give the nost satisfactory results in fluxing, were received from as many different furnaces, and carefully analyzed. Their average composition was found to be as follows:

mate of protoxide of iron. Water Solid black carbovaceous matter Oxide of maganese Undetermined matter and loss

Limestones not unfrequently contain humus and some soda and potash, and also sulphur and phosphorus in combination with the other onstituents, usually though, in limited quan tity. The sulphur does little injury in the blast furnace, because, being combined as sulphate with the lime, it passes into the slag and runs off. The phosphorus, however, having a strong affinity for iron, is apt to become reduced in the metal, a fact which should not be forgotten by those who aim to make pig metal for conversion into Bessemer steel. Stones the richest in lime will as a rule give the best results in fluxing. It is the lime alone that is wanted, because the other substances requisite for the formation of slag usually exist in excess in the ores; hence the leaner the stone the more of it must be used.

The use of ovster shells as a substitute for imestone is limited to sea-board localities An average of some analyses of air dried shells from a furnace at Baltimore, showed results as

neoluble earthy matter	n=oluble earthy matter	Carbonate of lime											81
Phosphoric acid	Phosphoric acid												1
	Alumina, with a little oxide of iron	ulphuric acid	 	 	 	۰		 				0.0	

Shells make an excellent flux for small charoal furnaces; but their use in large anthracite furnaces has been objected to because of their alleged tendency to pack and measurably obstruct the ascent of the gases.

Anthracite.-This fuel is by no means constant in composition. Much of it is impure, being variously intermixed with slate and shale, and affording sometimes nearly twenty per cent. of ash. All of the ash must be fluxed and brought to the condition of fluid slag, and consequently each one per cent. of it will re quire the addition of more than one and a half per cent. of limestone, and for each one per cent. of slag there must be consumed more than a half of one per cent. of fuel.

Twenty-four fair samples of good anthracite from the Schuylkill, Lehigh and Susquehanna regions, were analyzed, with the following average results:

Moisture. Volatile combustible matter. Ash. Fixed carbon.	8:45
	100.00
There was included in the above :	
Sulphur Phosphorus	'240
Coke This is destined to be the leading	ig fuel
in the metallurgy of iron and steel. A s	ample,
composed of forty-nine different pieces,	fron.
the neighborhood of Connellsville, Pa., upon analysis, the following result:	gave,
Moisture	
Zhena	
Sulphur	
Carbon by difference	87:456
	100.000
The ash of this coke gave :	

Sesquoxide of iron... Lime... Magnesia... Sulphur... Phosphoric acid (phosphorus '09). Potash and soda.... 100:00 Some analyses of the ash of anthracite showed

very nearly the same composition.

Connellsville coke is hard, has a good metallie ring when struck, bears much handling without breaking, and does not materially de teriorate by keeping. It is given as a standard whereby the value of other cokes may be ascer

The majority of cokes produced are not so good as the Connelisville. Many contain more than fifteen per cent. of ash, and from one to two per cent. of sulphur, though there are some with less than three per cent, of ash and one tenth of one per cent. of sulphur. A coke will always lose more or less sulphur by keepingthe substance volatilizes.

Slags or Cinders, - Make an average sample by electing some of several tappings.

The following may be taken as about the composition of a slag that ought to be produced with fair foundry iron (anthracite):

		tr	
Mauganese			28 "6
Protoxic of ir	TUGH HO	r iron .95)	1-21
Loss			'45
		16	00.0

umina and man tenese may vary consider cause these substances measureably replication.

Slags produced by furnaces using charcoal ontain more or less potash, due to the ash of the fuel. \*

When a properly constructed and well appointed furnace works badly, the cause is due usually to an improper admixture of the raw material used. Whether or not this is the case may be readily ascertained by a reliable chemical analysis of the slag, which will show what substances are wanting, and what are in excess. Such an analysis should never be neglected.

Phosphorus in appreciable quantity is not neually found in normal slags of blast furnaces The substance has such an affinity for iron that nearly all that is native in the ore will afterward be found in the pig. But such is not the case with sulphur. A large portion of that substance may be expelled by roasting the ore. Another portion becomes volatilized in the fur nace; and still a larger portion may be fluxed out by judiciously using limestone rich in lime. Too much faith should not be placed in the notion that sulphur and phosphorus always largely neutralize each other, for iron may be both red and cold short from excess of the two

It takes about '50 of phosphorus, that is, one half of one per cent., to make an ordinary commercial bar of iron perceptibly cold short; but ess than a third of this quantity of sulphur may give the red short quality in a marked de-

Pig Irons.-These are more variable in their emposition than is generally supposed. A difference may exist between the bottom and top of a pig. Castings from the same raw maerial will sometimes materially differ, owing to the mode of mixing the ores, charging, and the temperature of the furnace. A high temperaure is favorable to the formation of graphitie earbon in the iron; at a very low temperature gray iron cannot ordinarily be made. As the er cent. of graphite changes, so will that of the silicon charge more or less, though this law does not hold when the iron is made white by using chill molds. The differences may be material, although not readily discoverable by the eye; therefore, to secure a proper sample for nalysis, pieces should be broken from several pigs of the lot. If the iron be gray and soft, the better plan is to bore or drill it, catching the fine particles on clean white paper, and then mix the several parcels in equal portions together, being very careful in the process to protect from all dust or dirt and moisture. couple of ounces of the mixture will be sufficient.

Some pig iron made at the Glamorgan Furnace, at Lewistown, Pa., with equal portions of hematite and fossil ores, anthracite being the fuel. was found to be of the following composition : Pure iron... Graphitic carbon.... Combined carbon and loss.....

The metal was coarse grained and soft classed as strictly gray No. 1 Foundry, and brought at Pittsburgh the highest price then ruling. It may be taken as a good type of its

A pig iron of the following composition was found well adapted for making Bessemer

raphitte	ca	rh	0	n	,							۰	 					. ,			ø			6		- 2
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langanes	в.																		٠		 					1
ulphur																 					 					tr
hosphori	18.												 					. ,								
nre Iron																									0	9
Indetecte	a i	m	n.f	+	0.1		9	n	A	1	le	ia											-			-

Gray pig irons of ordinary fair grade contain upon an average 6:50 of foreign matter, composed chiefly of carbon, silicon, manganese and calcium, with more or less sulphur and phosphorus. White from and spiegels are more variable, and contain from 2.50 to 20 per cent. of foreign matter. An excess of sulphur always tends to make pig iron white. The spiegels are rich in manganese and combined carbon. The average loss of iron in slag will scarcely exceed, or perhaps reach, 3:50 of the pig metal produced; hence in the general working there is always a gain upon the raw material, and more pig is obtained than there is pure iron in the ore; though this fact is not usually made apparent by an analysis of the ore only, because of the common practice above mentioned of furnace men selecting for mical investigation better material than is in the general working put into the furnace, a practice which as done and is doing a great

practice which has done and is doing a great deal of serious misc.lef.

The three following rules are given for guidance in blast furnace management:

First.—Allow no material to be put into the furnace, the composition of which you are ignorant.

norant.
Second.—Ascertain the composition of all stock at your command. -Ascertain from time to time the composition of each grade of pig metal the furnace

The importance of a proper adherence to The importance of a proper adherence to these rules must be obvious. A neglect of them may cause, as it has caused but too frequently, the chilling or unsatisfactory working of the furnace, or the continued use of a poor limestone, or of an ore or fuel bad because of associated injurious matter, when other stock every way suitable to be used either as a mixture or along the storment and may be evited.

every way suitable to be used either as a mixture or alone, is at command, and may be quite near by and neglected. A knowledge of the constituents of the pig metal will indicate what raw material should be used, and the manner of its use, and also inform as to what purvoess the metal is best adapted, and therefore, to whom it may be most advantaceously sold.

Science is now far in advance of practice in the metallurgy of iron; and no more cosmistake can be made by the ironmaster than to refuse or neglect to call to bis aid the manifold benefits that chemistry affords. A few hundred dollars judiciously expended yearly in reliable chemical analyses, may save from ruin, and can not but add thousands to the profits of any modern high class furnace. and con not but add thousands of any modern high class furnace.

J. BLODGET BRITTON.

IRONMASTERS' LABORATORY, No. 339 Walnut Street, Philadelphia.

As a flux, good normal furnee siag, with a luttle limestone or ovster shells, may be used sometimes with great sevantage;



#### ANSWER TO HENRY DISSTON.

last week's issue of this paper, we find, that if any one will conceal a V obstruction between (by the 20th inst...) I will then close it out on the points of my Patent M tooth, a "saw will cut four times as fast," as if its points were all of the last... I will sell my goods at a old V teeth.

Henry Disston stakes his reputation on this recommendation of my goods If an adulterated Lightning (dubbed Great American) "will cut four times as fast as the common tooth" used by other saws, what, then, will my genuine Patent Lightning do?

'If such the sweetness of the stream, What must the fountain be."



I AM WILLING AND EXTREMELY ANXIOUS, ON PROPER NOTICE, TO ACCEPT A CHALLENGE FROM H. DISSTON & SONS, OR ANY RESPONSIBLE SAW MANU FACTURER, AND AM READY TO BACK MY WORDS WITH APPROPRIATE DEEDS AND \$500 EXPENSE, IF BEATEN.

N. B. WITH HAND, BILLET OR CROSS CUT SAW, \$500 ON EACH.

"This certifies that at request of Mr. E. M. BOYNTON, sole proprietor and manufacturer of the Lightning Saws, No. 80 Beekman Street, N. Y., I have examined his books and accounts of sales for the year 1872, and find the sum total of his shipments for said year to be more than HENRY L. PRATT, PRESIDENT, three times the amount of the year preceding.

"MILLERS FALLS Mrg. Co., 78 Beekman Street.

" New York, March 8, 1873,"



For 31/2 feet will be furnished to the trade at 92.25, net; 4 ft., \$2.60. A highly skilled man recently desired to test against the Lightning Buck Saw with a deep gummed saw similar to the V tooth, dubbed "Lumberman Saw." The said individual got beate 100 per cent, the first time, and every form of test, by time and by stroke, left it from 50 to 100 per cent, behind! This was done here, in presence of numerous witnesses a few days since.

. A sly old fox again last week insisted that my "GRAPES WEBE SOUR." On account of the overhang he could not get at them! He did not tell how highly he had recommended my Patent Lightning. Saws in years 1868 and 1869, or (although a record is kept) the \$25,000 jump he made at them for a taste, and that after eighteen months of investigation! He did not tell WHY he so desperately imitates my goods now

He did not tell why he did not accept my offer to have the matter settled by a public test.

Is this the reason why?

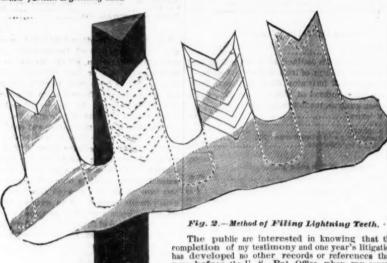
"By hand, two men cut off a tweive inch syeamore (buttonwood) log in eight seconds, before Major-General Mende and other distinguished men, at Independence Square, Philadelphia, September 1, 1869. We also note, as a proof of the case that permits sustained effort, the sawing, by hand, of twenty-six cords of hard beech, maple, elm, ash and hichory wood in eight hours (ten hours, including lost time) in Michigan. Such work, by two men with one saw once filed, is

hand, of twenty-six cords of hard beech, maple, clin. ash and hickory wood in eight hours (ten hours, including lost time) in Michigan. Such work, by two men with one saw once filed, is wonderful.

"These saws are made and sold by Mr. E. M. Boynton, 30 Beckman street, New York, and are protected by four patents, dated, respectively, Nov. 27, 1866; July 23, 1867; Junuary 14, 1868; July 27, 1869. We trust that the inventors of so valuable an improvement, in an article of such universal use as the saw, will be able to enjoy the fruit of their labors free from infringement or piracy of any kind.—(The fron Age, April 7, 1870)."

He insists that gumming saw teeth with files is a modern method. He preves that as my saw tooth contains all others, it is easily filed any desired saw. If a few dressings makes the angle of my saw like Lumberman or any other V tooth, why they can keep it so, if they like. I think a little more steel (not steat), useful, although he insists the wider the M the sooner it is filed to a V. He may have made and sent out such wretched samples of hook teeth as he now, publishes to my injury, but hundreds of thousands who have bought my goods can certify that the dressed edge is straight always, although wide at point for durability.

The special File, made for filing the center of my M teeth, I am manufacturing in quantity, and can furnish at 36 per dozen—10 inch. I can furnish round edged Files to any who want to gum Saws expensively, but a 75 cent emery wheel will save you \$25 per saw. A slight reflection will show that in many instances men spend more than the original cost of a Saw in filing away saw plate, when only one hundredth of an inch of point is dulled in use, and a slight dressing of points in the center shortens thus edging, thus saving the shape per-eff the point of steel of other saws, time and money greater than the content of the Saw on each set of teeth. But if you cannot afford to buy all these four other varieties of imitation Saw, recollect that a genuine Lighting Saw contain



The public are interested in knowing that the completion of my testimony and one year's litigation has developed no other records or references than were before the U. S. Pat. Office, when my several claims passed and received the government seal of approval. Such being the record, no other testimozy is feared, and my notice to all persons who make, sell or use innitation goods is—Beware. I shall certainly make the piracy of my hard earned property expensive for you in the end. Men do not imitate an inferior article.

I can furnish any of the inferior and really unpatented mitations at prices defying competition, as I do not depend on the old V tooth for a living. I will protect my customers in a fair profit on my patented goods. To all fair minded men who are interested in making, selling and using saws, I appeal to stand by the only improved cutting tooth saw ever invented and patented, for with my efforts within a few years it has trebled the sale of cross cut saws. While I have prospered the public have been educated in scientific timber cutting—no small thing when it is asserted that a Billion bolars is the annual Wood, Lumber and Timber crop of America. Four times the value of our wheat crop.

As it costs a year and a Thousand Dollars to wear out a cross-cut saw, a saving even of ten per cent, is a great saving to the toiler; also the immense waste in cutting wood with Axes is almost incredible; any one engaged in cutting cord wood, will tell you that the tough and Knotty Timber, and chips are wasted, when they may become good stove wood, if the logs are cut short with my cross cuts, as blocks of one foot in length are easily hauled and split.

If the logs are cut short with my cross cuts, as blocks of one foot in length are easily hauded applid.

The savings of timber and time by the scientific use of saws, it is computed, would equal the annual interest on the U.S. Public Debt Streed, and the toil of millions of farmers be lightened, if they will only learn to use saws to cut their wood.

Study carefully the demonstration on page 10th, and note extra steel and durability of my M teeth over the old V tooth. The V tooth represens a zig zag fractured plate for wearing of timber. The Lightning direct cutting doubled on same base of tooth without less of space.

N.B.—Any M tooth cutting saw with one point set one way and one the other, is practically equal mentioned.

The American Institute Official Report.

"The Lightning Saws are certainly an improvement in that useful article. Formerly the greatest angle for saw teeth was 60 degrees (or one-sixth of a circle), while in these saws it is 30 degrees (vertical), which gives it a cutting edge instead of a scraping edge, and must nece sarrily cut much faster than any other saw now in use, and consequently consider them of the Labest of the La

Also, Special Medals of 1872, and Special Silver Medal, 1873, awarded over all other Saws to

### E. M. BOYNTON 80 Beekman Street N. Y.

### Special Notices.

I am now invoicing a \$30,000 to \$40,000 stock of Hardware. It is as clean a stock as there is west of the Alleghenies, having jurnished during the last 12 months from its shelves two entire city retail stores, with the view only in one instance of cleaning up the stock. I did not buy the stock with a view of continuing the trade. It is for sale on the most liberal terms, and at a discount from the value of the goods. This is a rare opportunity for engaging in the jobbing trade in the best city in the United

R. S. DORSEY, Indianapolis, Ind., June 5, 1874.

man with over 20 years' experience in the manufacture of Iron, a thorough, practical droughtsman, Civil and Mechanical Engineer, at present in charge of the construction of a blast furnace in the South, will be open to engagement shortly.

IRON MASTER, Office of The Iron Age, No. 10 Warren Street, N. Y.

Katahdin Charcoal Pig Iron. W. DAVIS, Jr., Manufacturer, Portland, Me. rurace in Piscataquis County, Me., for Car Wheels, cam Cylinders, Beller Plates, Hydraulic Presses, Plowallied Rolls, and any parpose requiring great streagth. South Boston Tests, Katahdin Pig Iron. 1, 18,84 (donsity, 720%; tenales strength & aquare In., 19,84 (donsity, 720%; tenales strength & aquare In., 19,84 (donsity, 720%; tenales strength & aquare In., 19,84 (donsity, 720%; tenales are proposed by 1,200%; in., 19,100%; in., 1

### To the Trade. HARDWARE TRADE REGISTER.

Owing to the backward state of trade occasioned by the late panic, we have deemed it advisable to defer the issue of our Trade Register until a later period than usual in order to give its benefits to the trade of next season.

It having come to our knowledge the trade of next season.

It having come to our back of the trade of next season, and the later of trade to our already established reputation, by assimilating our title, and even, in some instances, from what we understand, using our last edition for canvassing purposes, we respectfully, anounce to the trade that we are now canvassing for our next edition, which will contain additional features of interest calculated to make it still more valuable than it already is, and render it indispensable as a work of reference to the trade, and we ask them to withold their advertising favors antit our agent may call upon them.

Plense, Notice that we always have a printed form, beatring our address 4 & 6 warres and for orders for advertisements, and that they are payable only to the order of the Manuacer.

The Merchants and Manufacturers Agency, No. 14 Park Place, N. Y., Publisher.

#### CAUTION

No advance payments required for regular advertisements; but all small matter is payable in revance. And our only authorized agents to collect money are invariably provided with a certificate of authority, bearing our official seal, and signed by the manager, and are instructed always to give our printed receipt stamped with our seal and countersigned by the party receiving the money.

WTHOMPSON, Manager.

#### MANUFACTURERS

sirous of introducing their goods to the British and Continental Markets, are advised to insert lished every Saturday, at 99 Cannon Street, London, E. C.

SCALE: First 3 lines, 3/; every additional line, 10d. Price, 6d. per Copy, or 30/ per annum, inclusive of postage to the United States.

Wanted. Furnace manager to take charge of two first-class hot blast charcoal furnaces, erected for smelting titanic ores. Address the undersigned, stating terms at once.

R. McCarquodale, General Manager Canadian Titanic Iron Co., Limited,

Bay St. Paul, P. Q.
Instructions will be given in regard to smelting

### TO INVENTORS. s secured in the United States and Europe, west terms and very

PROMPTLY, by A. V. BRIESEN, Solicitor of Patents and Attorney at Law in Patent Cases. 258 Broadway, N. Y., cor. Warren St. Consultation gails.

BISSELL & CO., AUCTIONEERS.

### By BISSELL & CO.,

Store No. 94 Reade Street. Our REGULAR SALES of HARDWARE, CUT LERY, FANCY GOODS, &c., will be held on TUES. DAYS and FRIDAYS throughout the seaso CASH ADVANCES made on CONSIGNMENTS with out additional charge.

### J. M. WHITE,

Architect and Constructor of Charcon Blast Furnaces. Plans, Specifications and Es Office address

FON DU LAC, WIS

Next July a well known firm of Engineers and Ma chinery Agents, with large connections at home and abroad, will open a ground floor warchouse, having windows fronting Queen Victoria Street and Cannon Street, City, London, England. The firm is prepared to accept the agency for special machinery, tools. &c., and to exhibit a choice selection of hese, and of working models. Advertisers' travelers canvass Great Britain and the whole of Europe. For W. P. L.

Office of The Iron Age, No. 10 Warren St., N. Y.

### McHaffie Direct Steel Castings Co.

STEEL CASTINGS, omogeneous, guaranteed to stand a Ter Solid and Homogeneous, guaranteed to stand a Tensible Strain of 25 tons per square inch. An invaluable substi-tute for expensive WROUGHT IRON FORGI INGS or for Iron Castings, where great strength is re-quired. Outnet, core. Yellinn and Levant Sis., 2411.450 LPHIA.

JOHN E. BYRNE. 99 Chambers St., N. Y. JAMES C. JACOBS, Wooster, Ohio.

### Special Notices.

### WM. E. TANNER & CO., Metropolitan Works.

Steam Engines, Boilers and other MACHINERY,

Canal St., from 6th to 7th, Richmond, Va.

In addition to a full line of new engines, boilers, saw mills, and other machinery of our own manufacture, we have now on hand and will sell at very moderate rates, where now on hand and will sell at very moderate rates, it is pouble from the property of the control of the proposes. Each of the these engines has two cylinders, 71s in. diam. by 18 in. stroke; two drums, 4 ft. diam. by 4 ft. long; geared to engine in proportion of 8 to 1, and are provided with disconnecting gear and friction brakes.

One 180 Horse-Power Stationary Engine, with heavy fly wheel, all complete, and nearly as good as new.

Three Return Tubular Boilers, (70 three inch tubes each). 15 feet long, complete with steam drum, fronts, valves, grates, &c., suitable for the above eagine.
One 10 Horse-Power Portable Engine of our own make, completely new, and in excellent order.
One 20 Horse-Power Portable Engine, with circular saw mill, saw and belt complete, in first rate order.
Three 4 Horse-Power Stationary Engine, Cylinder, 4 in. by 10 in.
One 20 Horse-Power Stationary Engine, as good as new, complete, with "Judson" governor, fly wheel, &c. One 28 Horse-Power Stationary Engine, in good running order, but not as new as the above.
One 16 Horse-Power Stationary Engine, in good running order, but not as new as the above.
One 16 Horse-Power Stationary Engine, in good running order, but not as new as the shove.
One 16 Horse-Power Stationary Engine, with new vertical boiler.
One 16 Horse-Power Stationary Engine, in good running boder, but not as new as the shove.
One 16 Horse-Power Stationary Engine, which new vertical boiler.
One 16 Horse-Power Stationary Engine, which new vertical boiler.
One 16 Horse-Power Stationary Engine, which new vertical boiler.
One 16 Horse-Power Stationary Engine, which new vertical boiler. Canal St,, from 6th to 7th, Richmond, Va.

One 16 Horse-Fower Stationary Engine, with new vertica holler.
One Otis Holsting Engine, in good order.
Two Flue Isobers, 26 ft. long, 42 in. diam., each with two 14 in. flues, iron front, grates, &c., in good order.
One Flue Boiler, 36 ft. long, 86 in. diam. with two 14 in. flues, about as good as new.
One 2 Borse For Bable in the Company of the Co

#### Special Notices.

#### Spanish Prices Current.

The undersigned issues an extensive Spanish Prices Current for every Mexican steamer. It is arranged for and circulates in all Spanish American countries, in Brazil, Span and Manila. Our merchants forward the same in their correspondence, and under a special arrangement, leading Hardware, Paint and Oil houses are quoted in it. The Prices Current, although not pretending to be an advertising medium, is thus of great value to the party quoted. A copy with full particulars will be forwarded to manufacturers desirous of thus pushing their interests in South America, etc. Address,

C. KIRCHHOFF, Commercial Editor "El Cronista," Box 2806 P. O., N. Y.

### Wanted.

A large Vertical Shear, second-hand, suitable for cutting the heaviest description of Wrought Iron Scrap. Send specification and price to

> T. M. ROBERTS. Montreal, Canada.

Wanted, A position in a Hardware Commission House; either a salesman or Stock Clerk. Good reference if required Address, W. M. K., P. O. Hex 153. Portsmouth, New Hampshire.

### A. PURVES & SON, Corner South & Penn Streets, Phila.,

Scrap Iron & Metals, Machinery, Tools, Shafting & Pulleys, Steam Engines, Pumps & Bollers, Copper, Brass, Tin, Babbit Metals, Foundry

Facings. Best Quality Ingot Brass.

Cash paid for alkinds of Metals and Tools.

### FIFTH incinnati Industrial Exposition, 1874.

Under the direction of a Board of Commissioners appointed by the Chamber of Commerce, Board of Trade and Ohio Mechanics Institute.

> Open to the Public from September 2d to October 3d. Open for reception of goods from Aug. 3d to Sept. 1st.

This GRAND EXPOSITION, the largest ever held in the United States, has achieved its popu arity, not only as the foremost Industrial Fair of America, but as the only enterprise which is without a Stockholding interest, and contributes nothing to any private profit. It is supported by a Public Guaranntee Fund of a Quarter of a Million of dollars, and is in no sense a Private Enterprise,

The Exposition will be held in buildings especially erected in the heart of the City, presenting an vailable exhibiting space of eight acres under roof.

Arrangements have been made for reduced rates of Fare and for the Cheap Transportation of Articles for the Exposition, from all points of the Country. Parties proposing to exhibit will be furnished with Premium Lists and Rules upon application to

W. P. ANDERSON, Secretary,

## **BOOK FOR EVERY BUSINESS HOUSE**

### **LEVEY'S**

SOUTH AMERICAN. ASIATIC AND OCEANIC

### 100 PRINCIPAL CITIES AND TOWNS

Cuba, West Indies, Mexico, Central America, Brazil, Argentine Republic, Uruguay, Chili, Peru, Australia, New Zealand, India, China, Japan, and British Columbia.

With a list of the Commission Merchants and Shippers

New York, Boston, Philadelphia, London, Liverpool and Manchester

Who do business with these countries.

The Products of each Country, Imports and Exports, Customs Tariff, Names of Consuls, Banks, Insurance Companies. Public Officers, Etc., with a List and Date of Sailing of Steamers, Means of Transportation of Freights, Population and Extent of each Country, Etc.

COMPILED AND PUBLISHED BY THE FOREIGN DIRECTORY COMPANY No. 2 Wall Street. New York.

### FOR SALE. The Harrison Boiler Works,

Dula, comprising all the Real Estate about 10% acres), with Buildings, Factory, Dwellings, Warehouses, etc., the nanifecture of this well known and successful Steam Generator. This establishment is in first-class order in evapect, and has facilities for turning out 300 horse-power of Bollers per week. There is now in use over 50 orse-power, with a present steady demand. The shops have both rail and water facilities for shipping, and a every way well appointed for machine and foundry work in conjunction with the manufacture of bollers.

Executors of The Estate of Jos. Harrison, Jr., Deceased,

# Trade Report.

Office of The Iron Age.
Wednesday Evening, June , 1874.

The settlement of the currency question has been beneficial to business in Wall street. Money has been easy throughout the week at 2 @ 3 per cent. for call loans, while prime commercial paper has been salable at 5 @ 51/4

Gold has strengthened up steadlly during the week, and closes at about 111% per cent. The range of quotations for the week has been as

													E	L	g	e I	hes	1.			Le	owest.
Thursday																1	11	16				111
Friday					 				0			0				1	111	VK.				111
Saturday .			0				0	0	۰		0		 			1	1113	Vi.				11136
Monday																						1111%
Tuesday										0 1		0 1	 			1	13					11156
Wednesda	ıy											0.7	 			1	112					111%
The of	_	-1	L	_	 	-1		_	4						_		10	do	wiles.	ne.	+100	conlu

part of the week, but strengthened toward the close, and a brisk advance occurred on many of the leading shares. The dealings during the week were in Lake Shore, Telegraph, Pacific Mail, Wabash, Union Pacific, Northwest and Erie. The highest and lowest quotations at the close of business to-day are given below.

Governments were easy early in the week, but are strong at the close. State securities have been dull, and are mostly nominal.

Railroad mortgages are firm at the close, but shared in the general depression early in the

The last bank statement shows a reduction in loans of \$3,175,300, a decrease in specie of \$1,936,800, a gain of \$387,600 in legal tenders, and a loss in deposits of \$5,102,900. The total reserve has fallen \$1,039,200, while the total liabilities have been reduced \$5,122,400. The banks now hold in lawful money \$18,204,850 above 25 per cent. of their total liabilities, which is \$181,400 more than so keld last week. The following is a comparison of the averages of the past two

	June 18.	June 20.	D	fferences.
Loans	\$281,242,800	\$279,067,500	Dec.	\$2,175,300
Specie	\$1,921,000	12,934,200	Dec.	1,986.800
Log. Fen	60 951,000	61.838,600	Inc.	887,600
Deposits	232,722,400	227,619,500	Dec.	5,102,900
Circ'l tion	26,671,800	26,652,300	Dec.	19,500
m - 6-1	table	a show the	fam.t	om tunde

vements for the week :

IMPORTS. 1873. 1874.
Total for week...\$7,918,893 \$5,790,952 \$6,854,641
Prev. reported.. 210,918,985 198,864,823 197,652,369 Since Jan. 1....\$218,837,863 \$204,655,775 \$204,507,010 Included in the imports of general merchan-

dise for the week are:	
Quant.	Value.
Anvils 70	\$80
Brass goods17	1,343
Bronzes10	2,893
Chains and anchors64	4,718
Copper	10,619
Cutlery 74	24,259
Guns	5,414
Gun barrel moulds60	1,665
Hardware82	11,434
Iron pig, tons	15,725
" sheets, tons 136	27,529
44 R. R. bars 17,221	350,162
" other tons164	10,512
Metal goods	21,514
Needles	
Old metal	450
Platina	
Saddlery	1,644
Steel	36,380
Spelter265,851	13,790
Tin boxes18,388	140,782
Tin, bbls	1.081
Tin, 1851 slabs	14,927
Wire	7,988
Zinc453,410	32,264
EXPORTS EXCLUSIVE OF SPECIE.	
1879. 1878.	1874.
For the week \$4,395,843 \$5,728,915 \$6	,429,678

For the week... \$4,895,843 \$5,728,915 \$5,429,676 Prev. reported... 97,437,497 128,912,005 131,351,351 

 Since Jan 1....\$101,833,340
 \$134,640,920
 \$137,781,033

 EXPORTS OF SPECIS.
 \$1,731,156

 Previously reported.
 24,934,946

Previously reported.

24.934.946

Total since January 1, 1874.

1873.

24.937.410

1873.

32.635.800

The following is the text of the new currency till, signed by the President on Tuesday:

SEC. 1. The act entitled "an act to provide a National currency, secured by a pledge of United State bonds, and to provide for the circulation and redemption thereof, approved June 3, 1864." shall be hereafter known as the National Bank Act.

SEC. 2. That section 3 of the National Bank Act, be so amended that the several associations therein provided for, shall not hereafter be required to keep on hard any amount of money whatever, by reason of the amount of their respective circulations; but the moneys required by said section to be kept at all times on hand, shall be determined by the amount of deposits in all respects as provided for in the said section.

SEC. 3. That every association organized or

deposits in all respects as provided for in the said section.

SEC. 3. That every association organized or to be organized under the provisions of the said act, and of the several acts amendatory thereof, shall at all times keep and have on deposit in the Treasury of the United States, in lawful money of the United States, a sum equal to five per cent. of its circulation, to be field and used for the redemption of such circulatian, which sum shall be counted as a part of its lawful reserve, as provided in section 2 of this act; and when the circulating notes of any such associations, assorted or unassorted, shall be presented for redemption in sums of \$1000, or any multiple thereof, to the Treasurer of the United States, the same shall be redeemed in United States, the same shall be redeemed in the contract of the contr to five per cent. of its circulation, to be held United States notes. All notes so redeemed shall be charged by the Treasurer of the United States, to the respective associations issuing the same, and he shall notify them severally on the same, and he shall notify them severally on the first day of each month or oftener, at his discretion, of the amount of such redemptions, and whenever such redemptions for any association shall amount to the sum of \$500, such association so notified, shall forthwith deposit with the Treasurer of the United States, a sum in United States notes, equal to the amount of its circulating notes so redeemed; and all notes of National banks, worn, defaced, mutilated or otherwise unit for circulation, shall, when received by any assistant Treasurer, or at any otherwise untit for circulation, shall, when re-ceived by any assistant Treasurer, or at any designated depository of the United States, be forwarded to the Treasurer of the United States for redemption, as provided herein; and when such redemptions have been so re-imbursed, the circulating notes so redeemed, shall be forwarded to the respective associations by which they were issued; but if any such notes are worn, mutilated, defaced, or ren-dered otherwise unit for use, they shall be forsuch notes are worn, mutilated, defaced, or rendered otherwise unit for use, they shall be forwarded to the Controller of the Currency, and destroyed and replaced as now provided by law. At a meeting of the Tack Manufacturers in Boston to-day (Wednesday) prices were materized by the Controller of the Currency and the associations hereafter organized shall also severally reimburse to the Treasury the theorem to the Treasury the deficient arrangement of the currer.

At a meeting of the Tack Manufacturers in Boston to-day (Wednesday) prices were materially reduced. The following is the new price list, from which it should be remembered an additional discount of 7½ per cent. Is to be

cost of engraving such plates as shall be ordered by each association respectively, and the amount assessed upon each association shall be in proportion to the circulation redeemed, and be charged to the fund on deposit with the Treasurer; and, provided further, that so much of section 32 of said National Bank Act requiring or permitting the redemption of its circulating notes elsewhere than at its own counter, except as provided for in this section, is hereby repealed.

SEC. 4. That any association organized under this act, or any of the acts of which this is an amendment, descring to withdraw its circulating notes, in whole or in part, may, upon the de-

amendment, desiring to withdraw its circulating notes, in whole or in part, may, upon the deposit of lawful money with the Treasurer of the United States, in sums of not less than \$9000, take up the bonds which said association has on deposit with the Treasurer for the security of such circulating notes, which bonds shall be assigned to the bask in the manner specified in the 19th section of the National Bank Act; and the outstanding notes of said association, to an amount equal to the legal tender notes deposited, shall be redeemed at the Treasury of the United States, and destroyed, as now provided by law; provided that the amount of the bonds on deposit for circulation shall not be reduced below \$50,000.

SEC. 5. That the Controller of the Currency shall, under such rules and regulations as the Secretary of the Treasury may prescribe, cause the charter members of the association to be printed upon all National bank notes which may be hereafter issued by him.

be hereafter issued by him.

SEC. 6. That the amount of United States SEC. 6. That the amount of United States notes outstanding, and to be issued as a part of the circulating medium, shall not exceed the sum of \$382,000,000, which said sum shall appear in each monthly statement of the public debt, and no part thereof shall be held or used

sum of \$002,000,000, which said sum shall appear in each monthly statement of the public debt, and no part thereof shall be held or used as a reserve.

SEC. 7. That so much of the act entitled, "An act to provide for the redemption of the three per centum temporary loan certificates and for an increase of national bank notes" as provides that no circulation shall be withdrawn under the provisions of Section 6, of said act, until after the \$54,000,000 granted in Section 1, of said act, shall have been taken up, is hereby repealed; and it shall be the duty of the Controller of the Currency, under the direction of the Secretary of the Treasury, to proceed forthwith, and he is hereby authorized and required, from time to time, as application shall be duly made therefor, and until the full amount of the \$54,000,000 shall be withdrawn, to make a requisition on each of the national banks described in said section, and in the manner therein provided, organized in States having an excess of circulation, to withdraw and return so much of this circulation, as by said act, may be apportioned to be withdrawn from them, or in lieu, thereof, to deposit in the Treasury of the United States lawful money sufficient to redeem such circulation, as shall make such return of the circulation required, or the deposit of lawful money, as herein provided, a proportionate amount of the National banks, upon which requisitions for circulation shall be made, or of any of them, to return the amount required, or to deposit in the Treasury lawful money to redeem the circulation required within 30 days, the Controller of the Currency shall at once sell, as provided in section 40 of the National Currency Act, spproved June 3, 1864, bonds held to secure the redunition of such association or association or associations which shall be deposited in the Treasury of the United States, so much of the Currency shall at once sell, so provided in the Treasury of the United States, so much of the Currency shall be deposited in the Treasury of the United St

tion or associations white shall so fail, to an amount sufficient to redeem the circulation required of such association or associations, and with the proceeds which shall be deposited in the Treasury of the United States, so much of the circulation of said association or associations, shall be redeemed as will equal the amount required for such redemption, it shall be returned to the association or associations whose bonds shall have been soid; and it shall be the duty of the Treasurer, Assistant Treasurers, designated depositories, and National bank depositories of the United States, who shall be kept informed by the Controller of the Currency of such associations as shall fail to return circulation as required, to assort and return to the Treasurer for redemption, the rotes of such associations as shall come into their hands until the amount required shall be redeemed, and in like manner, to assort and return to the Treasury for redemption, the notes of such National banks as have failed or gone into voluntary liquidation for the purpose of winding not their affairs, or such as shall hereafter so

Treasury for redemption, the notes of such National banks as have failed or gone into voluntary liquidation for the purpose of winding up their affairs, or such as shall hereafter so fall or go into liquidation.

Sec. 9. That from and after the passage of this act it shall be lawful for the Controller of the Currency, and he is hereby ordered to issue circulating notes without delay as applications therefor are made, not to exceed the sum of \$55,000,000, to associations organized or to be organized in those States and Territories having less than their proportion of circulation under an apportionment made on the basis of population and of wealth, as shown by the returns of the census of 1870, and every association hereafter organized shall be subject to and governed by the rules, restrictions and hmitations, and possess the rights, privileges and franchises now or hereafter to be prescribed by law as national banking associations, with the same power to amend, alter and repeal provided by the National Bank Act, provided that the whole amount of circulation withdrawn and removed from the banks transacting business shall not exceed \$55,000,000, and that such circulation shall be withdrawn and redeemed as shall be necessary to supply the circulation reviously issued to the banks in those States having less than their apportionment; end provided further that not more than \$30,000,000 shall be less than their apportionment; and provided further that not more than \$30,000,000 shall be withdrawn and redeemed as herein contem plated during the fiscal year ending June 30,

The title of the bill is amended to read as follows: "An Act to fix the amount of United States notes, provide for the redistribution of the National Bank Currency, and for other pur-

### GENERAL HARDWARE.

In Hardware circles matters are going on smoothly and without excitement. There is some business doing, but the attention of the trade is chiefly occupied with preparations for of the number of changes in prices that may be on, to go into effect next month, but we are not at liberty to make them public now.

W. A. Ives & Co. have issued a circular in which they call attention to a change in the cutting arrangement of their well known Expansive Hollow Auger. As formerly constructed it was liable to clog. It is claimed that this difficulty is entirely evercome by the pres-

taken. Those prices which have been reduced are printed in heavy type, while those which remain unaltered are given in the usual figures.

#### HARDWARE LIST.

TACKS-LIST PRICE. Oz . . . . . 1 1½ 2 2½ 3 4 6 8 10 12 14 16 18 20 22 24 Cts. per M. 7 7 7 8 9 10 12 14 16 18 20 23 24 26 28 30 COM. AND PAT. BRADS-LIST PRICE.

Miner' Tacks, Full Weight, 25 per cent. discount from List Price.

Miner' Tacks. Half Weight, 62½ per cent. discount from List Price.

Round Head Hungarian Natis, per M, 4 oz. 10c, 6 oz. 12c, 8 oz. 14c, 10 oz. 1c, 16 oz. 12c, 18 oz. 14c, 10 oz. 1c, 18c, 14 oz. 90c, 16 oz. 22c, 18 oz. 24c, 20 oz. 26c.

Leas 30 per cent. Half weight, half price.

Tinned Tacks, per M., 1 oz. 10c, 1½ oz. 10c, 2 oz. 10c, 2 oz. 10c, 2 oz. 12c, 4 oz. 26c, 16 oz. 30c, 18 oz. 10 oz. 31c, 12 oz. 32c, 14 oz. 26c, 16 oz. 30c, 18 oz. 10 oz. 31c, 12 oz. 32c, 14 oz. 26c, 16 oz. 30c, 18 oz. 6 oz. 31c, 2 oz. 11c, 2 oz. 31c, 24 oz. 12c, 3 oz. 13c, 4 oz. 12c, 6 oz. 11c, 2 oz. 11c, 14 oz. 27c, 16 oz. 31c, 18 oz. 34c, 20 oz. 37c, 22 oz. 40c, 24 oz. 43c.

43c.

Hulf weight, half price.

\*\*Zarpet Tacks.\*\* (Charcoal or American Iron). per M, 6 cz. 8c. 8 cz. 9c, 10 cz. 10c, 12 cz. 11c, 14 cz. 13c, 16 cz. 15c.

\*\*Laif weight, half price.\*\*

\*Zarpet Tacks.\*\* Leathered, full count, 6 cz. 25c, 8 cz. 25c, 10 cz. 25c. per doz. gross.

\*Zarpet Tacks.\*\* Leathered, 100 in a paper, 6 cz. 20c, 8 cz. 20c, 10 cz. 20c, per doz. papers.

\*\*Brush Tacks.\*\* all sizes, per M, 16c; in lb. papers, see separate list.

\*\*Cigar Box Natis.\*\* per M, 48 in. 7c, 5-8 in. 8c, 6-8 in. 10c.

ar Box Nails, Swedes Iron, per lb., 4-8 in. 25c, 8 in. 25c, 6-8 in. 25c, Charcoal Iron, all sizes, 5-8 in. 25c, 6-8 in. 25c, Charcoal Iron, an sizes, 25c, per lb. Chair Natts, per M, 4-8 in. 7c, % in. 9c, 6-8 in. 11c, 35 in. 13c, 8-8 in. 15c. Full Weight Brads, (Common and Patent), at List

Full Weight Brads, (Common and Patent), at List price.

Haif Weight Brads, (Common and Patent), 50 per cent, discount from List price.

Finishing Nails, (Iron), ½ in. 35°, ½ in. 25°, ½ in. 20°, ½ in. 18°, ½ in. 18°, ½ in. and longer, 12°, per lb.

Finishing Nails, (Copper), 50°, per lb.

Sincetes Iron and Machine Finishing Nails, 1½ in. and longer, 14°, per lb.

Trunk and Clout Nails, ½ in. 25°, ½ in. 20°, ¾ in. 18°, ½ in. 11°, 1½ in. and longer, 14°, per lb.

Trunk and Clout Nails, ½ in. 25°, ½ in. 30°, ½ in. 25°, ½ in. 2

Basket Natis, 2c. per lb. advance on Trunk and Clout Natis.
Fine 2d Natis, American from 10%c., charcoal from 12c., swedes from 16c. per lb.
Barrel Natis, American from 9c., charcoal from 11c., Swedes from 14c. per lb.
Looking Glass Tacks, all sizes, 7c. per M, and 30c. per lb.
Glaziers' Points (tiq., 7c. per paper (% lb.).
Glaziers' Points (tron), 9c. per paper (% lb.).
Glaziers' Points (zinc), 12c. per paper (% lb.).
Picture Frame Points, 20c.

SHOE FINDERS' LIST. American Iron Shoe Nails, 4-8 in. and longer, 9%c.

American Iron Shoe Nails, 4-8 in. and longer, 9%c. per lb.

American Iron Shoe Nails, 3%-8 in. and shorter, 10c. per lb.

American Iron Shoe Nails, 12c. per lb.

Snoedes Iron Shoe Nails, 14c. per lb.

Zhoe Shank Shoe Nails, 18c. per lb.

Capper and Brass Shoe Nails, 50c. per lb.

Capper Gimp Nails or Tacks, 60c. per lb.

Capper Gimp Nails or Tacks, 60c. per lb.

Shoe Tacks, Small Heads, per M., 1 oz. 3%c., 1%

oz. 4c., 2 oz. 4%c., 2% oz. 5%c. 3 oz. 5%c.

Shoe Tacks, Small Heads, per M., 1 oz. 60c., 1%

oz. 42c., 2 oz. 38c., 2% oz. 34c., 3 oz. 30c.

Round Head Hungarian Nails, all sizes, Swedes Iron in b. ½ lb. or % lb. papers, 17c. per lb.

Round Head Hungarian Nails, all sizes, Charcoal Iron in b. % lb. or % lb. papers, 16c. per lb.

Rund Head Hungarian Nails, all sizes, American Iron, in b. % lb. or % lb. papers, 16c. per lb.

All other Iron Headed Nails for Shoe Work, 17c.

All other Iron Headed Nails for Shoe Work, 17c. per lb.

Hob Nails, best, all sizes, 16c per lb. in lb. or 1/2 lb. papers. Hob Nails, American Iron, 13c per lb. in lb. or 1/4 lb.

### 100 Nats, Allerican 100 papers.

| Steel Shoe Nats, all sizes, 35c per lb. |
| Steel Shoe Nats, 48 in. and smaller, 42c; ½ in., 50c; 6-8 in. and larger, 52c per M. |
| Ohannel Nats, per lb., 3½-6 in., 75c; ½ in., 50c; 3½-8 in., 45c; 4-8 in., 40c; 4½-8 in., 35c; ½ in., 39c; 5½-8 in., 39c |
| Any of the above kinds, Tinned, not specified, 5c par lb. advance on above prices.

Any of the above kinds, Trinica, not specified, ac-per lb. advance on above prices.

Terms cash, payable in funds current in Boston or New York. Goods delivered on wharf, New York, Philadelphia, Baltimore and in Boston. The above prices subject to change without pravious notice.

There is very little doing in Foreign Hardware, and no changes of importance to note. In the absence of demand, holders are unwilling out this figure would be shade 121/2 cents, gold, for 250 lbs. and over.

There seems to be little disposition, on the part of buyers, to take advantage of the low prices ruling in this market for Nails. The de mand continues light, and prices remain in the same position noticed in our last. We quote 10d. at \$3.80 @ \$4, net. Lots of 100 kegs at \$3.80 @ \$3.85, with a fer her concession for orders of 500 kegs and upward. As previously mentioned, some holders decline orders for large or small lots at better figures than \$3.85,

In House Furnishing Goods there is no imthe coming season. We cannot yet form an idea provement to notice in demand, and prices continue weak and irregular. The manufacturers expected next month. We know of some stayle of Plated Ware held a meeting on the 17th inarticles on which new prices have been decided stant, and failing to agree on a schedule of discounts, the prices of Spoons and Forks are, to say the least, irregular. Although the fact cannot be controverted that the combination hitherto existing on these goods is broken, still some manufacturers state that their price is continue to quote discount 33% and 5 per cent., cash, as their best figure for orders less than

Rogers & Brother, Waterbury, Conn., and No. 203 Broadway, N. Y., have issued the fol-

To the Trade: The Plated Ware Association,

at a meeting held this day, having failed to agree upon a schedule of discounts, we take this means of announcing to our friends and the trade in general, that our rate of discount on Flat Ware is 40 per cent, and 5 per cent, for eash. This is our price for the present only, and is subject to charge without notice, but we wish to assure the trade that we propose to meet a.! fair competition on first-class goods.

The following manufacturers quote Silver.

The following manufacturers quote Silver Plated Spoons and Forks at discount 40 and 5 per cent., cash, in lots less than \$1000: Reed & Barton; Hall, Elton & Co.; Rogers, Smith & Co. This price is only temporary, and it is hoped by the manufacturers that at their meeting on the 8th proximo a better under standing may be effected than exists at pres

The Globe Nail Company have issued the folowing circular :

OFFICE OF GLOBE NATI CO.

OFFICE OF GLOBE NAIL Co., Boston, June 1, 1874.

Frequent complaints have been made to us that certain parties are in the halit of selling "Globe" Nails in violation of the terms of our printed circular, and being anxious to protect all our customers and the trade generally, we hereby notify the public that we shall be caffer trivially enforce our terms and shall believe the content of the con

hereby notify the public that we shall hereafter strictly enforce our terms, and shall hold ourselves in readiness to withhold the supply of goods from parties whenever we are satisfied they have been underselling.

We shall also consider ourselves at liberty to decline orders from parties who exchange "Globe" Nails for others without placing the same restriction on those with whom they exchange that we place on our customers.

T. H. FULLER, Treas.

Graham & Haines have taken the agency of Brown's Hog Ringers and Rings, which they sell at manufacturers' prices, as follows:

Ringers, per doz. \$6:00 Rings, per doz. boxes. 3:00 6 doz Lots di-count 20 per cent. 12 doz Lots discount 33 per cent.

The following circular has been handed in for publication. It will explain itself:

Office of Yerkes & Plumb, FBANKFORD, PHILADELPHIA, PA., June 15th, 1874.

June 15th, 1874.

Gentlemen:—Information having reached us that certain parties in New York are offering our goods at 20 per cent. discount, having issued a circular to that effect, we wish to state that we have made no decline in our prices. The majority of the goods which they are offering at this discount are goods which were purchased of us over two years since, and part of them are odd sizes which they are anxious to dispose of, and are inferior in finish to goods which we are now making. We shall positively refuse to sell to any house hereafter that offer our goods below factory prices. We are compelled to do this in justice to the majority of the trade, who, as good business men, endeavor to maintain the price on our goods in return for our protection.

## rotection. Very respectfully yours, YERKES & PLUMB.

Charles Felder, 105 Reade street, quotes the 'Champion" Fluting Machine, as follows:

6 in. Machine, Complete.....each, \$6.00 6 in. Assentice, consistency of the first and the first an

Paul C. Coffin & Co. have removed from their old stand, No. 189 West street, to the new building, No. 197 West street, corner of Jay, where they will keep a full line of Shelf and Heavy Hardware and Cutlery, Tools and Agri-

cultural Implements. James C. Hand & Co., 614 and 616 Market street, Philadelphia, are agents for geouine Corundum from the Unionville mine, Chester Co. Pa. We take the following from a circular issued by the manufacturers :

issued by the manufacturers:

It is harder than Emery or any other known mineral except the "Diamond," and superior in its cutting qualities for the polishing or cutting of steel, iron or other hard substances for which Emery has been used. We are prepared to furnish it to the Trade at about the cost of good Emery, though up to the present time the cost has been so high that its use in this country has been confined to a few special purposes. From actual tests made by parties who have used it for some time, they say that it will do double the work that can be done with Emery. We propose to furnish it graded the same as Emery, so that parties ordering it can order and get the same numbers they are now using in Emery, and would solicit a trial that you may know its merits.

It is put up in Casks of about 250 lbs. each, at 30, 36, 46, 54, 60, 70, 80, 90, 100, 120, at 11 cents pounds each, at an advance of 2 cents per pound. We have seen numerous testimonials from

Traces. Peter Wright's Anvils are firmly held by destroyed by fire. A meeting of the stockent unable to state what action was taken.

Charles Busch, a well known Hardware merchant, of Detroit, Mich., writes us as follows:

chant, of Detroit, Alich., writes us as follows:

A gentleman whose business is the colonization of German laborers and farmers, and who is about publishing a pamphlet in Hamburg about American tools and implements, asked of me to help him in procuring cuts for such as would be the best means of illustrating the American implements, especially when they differ from the European. If you could assist me in any way of getting them, they should be returned eventually with thanks.

a good opportunity to make them known, and several times lately heard of American hardware articles going to Germany, as well as other the case with goods which are superior in design or workmanship to those in use abroad. charge of any cuts that may be sent him, or those to whom it is more convenient may send 42,470, against 42,040 a year ago. circular with each illustration.

ber 2d to October 3d. This will be the fifth Metal Bolts, 30c., net cash.

exposition held in Cincinnati, and judging by the grand success attending each and all of its predecessors, and the national character of the exhibition, we consider it in every way worthy of the attention and co-operation of inventors and manufacturers desirous of bringing their productions to the notice of consumers and the country in general.

#### BRITISH IRON MARKET.

(Specially reported by cable for The Iron Age.) WEDNESDAY, June 24, 1874.

Scotch Pig.-The market continues withut much change. The demand is not large, but prices are steady. The following are

makers' prices :

Manufactured Iron .- There is no change Manufactured Iron, which continues quiet, with prices nominal. Best Staffordshire Bars re quoted £11 @ £12.

Rails .- Welsh are still quotable 27. 15/@ £8, without any change in the general features of the market.

#### IRON.

American Pig .- We cannot report any improvement in any department of the Iron market, which still continues greatly depressed. How great this depression is may be judged from one fact. The Pacific Mail Steamship Company advertised for 1000 tons of Iron, which they wanted principally for ballast, and have certainly had offers at \$20 and \$21, while reports are current and believed of offers at considerably lower prices. They have not bought yet. 5000 tons of various brands have been sold for Pipe making, on private terms. We quote Lehigh brands at \$31 @ \$32 for No. 1 Foundry, but there have been sales at lower prices. No. 2 Foundry, \$29 @ \$30; Gray Forge, \$37 @ \$28. Sales of Lehigh Gray Forge have been made during the week at \$25 at the works.

Scotch Pig.-There is not any change to notice in the tone of the market, and but little in quotations. We note the sale of a Liver, ool lot of Glengarnock, reported to be 1000 wis from ship, here and to arrive, on terms that have not transpired. There is very litae Coltness here, though there is some on the way. We make no quotation of this brand. We quote Glengarnock, \$36; Eglinton, \$34; Sumnerlee, \$36.

Bar .- Bars are selling in a small way from mill at 2.8c. @ 3c.

Rails .- We note the sale of 1000 tons Amercan and 350 tons Foreign, both on private terms. We quote American \$60 @ \$62.50, currency, and Welsh, \$52 @ \$54, gold.

Old Rails .- We note the sale of 170 tons D. H. at \$38, time and interest. We quote Ts \$36, and D. H. \$38.

Scrap.-There is no change. We still quote \$37 @ \$38, from yard, and note the sale of 100 tons, July and August delivery, at \$40.

### METALS.

Copper.—But a moderate business has been done during the week under review, summing up some 300,000 pounds in lots, 100,000 of which were disposed of from the Lake at 241/2c., and the remainder in small lots at 24%c., on the spot. The market is quiet and strong, being firmly held at 24% c. for Lake, and 24% c. for Baltimore. There is none offering. Yesterday's London report, per cable, says: "Stock of Copper decreasing, market firm." The London metal papers and reviews to hand, up to the 18thinstant, contain the statement for May, to which we alluded in our previous reports, according to which the visible supply, i. e., the stock at Liverpool, Swansea, London and Havre, and Chili chartered and affoat, stood as follows: On the 1st instant 34,233 tons, against 38,820 in 1873, \$4,832 in 1872, 36,997 on the 1st May, 1874, and 36,115 on the 1st January, 1874. Prices stood £75 for Chili Bars 1st instant, now £80, against £84 June 1st, 1873, £107 in 1872, £65 the following prices: Nos. 8, 10, 12, 16, 20, 24, in 1871, and £68 in 1870. It will be seen that the present visible supply of 34,233 tons, and per pound. In casks, Flour and fine Flour, at the one two years ago, 34,332, are very nearly 9 cents per pound. Also in packages of 10 alike, while between the price, £107 in 1872 and £75 June 1st, 1874, there is a difference of £32. While this anomalous state of affairs had to give any closer figures than is demanded by some of the largest manufacturers of Iron and been calling the attention of metal statisticians regular trade for small lots. % inch Coil Chain steel goods in the country, asserting its superior for some time past, as it was pretty well known to exist from previous statements, the 1st June On Friday last the works of the Washoe exhibit had been looked forward to on both There is no change to note in the price of Tool Company, on Staten Island, were complete sides the Atlantic with an unusual degree of interest; but nobody had expected it to be as at 12 cents, gold, for sizes under 250 lbs., and holders took place to-day, but we are at pres- favorable as it proved to be when published. Two years ago large parcels of Copper were on the way to England from India and Japan; this year the case is precisely reversed, quite extensive Copper shipments being made to India from England at present. Aside from this, the existing stocks in Europe, with rare exceptions, show a heavy loss to present holders, and as the position of the article is improving, they are, of course, unwilling sellers at current rates. Add to this the low rate of interest on money in England, and For manufacturers of improved tools this is it is easily explained why the speculative element was finally also stirred up, and has no a fair probability of getting orders. We have doubt had quite a large share in the movement which was subsequently developed. We believe that, in its main features, the turn which parts of Europe. Of course, this can only be the metal has taken in Europe is perfectly legitimate, the more so as the Chilian charters for the fore part of May were but 1600 tons, mak-We presume that Mr. Busch will be glad to take | ing the 41/2 months 17,400 tons, against 17,100 in 1873, and for the 12 months ending 16th May, It is thus unaltered by the result of the recent meeting, and their cuts to us, and we will forward them. It shown that these chowers, about whose alleged would also be well to furnish a brief descrip- extraordinary volume to much noise had been tion of the points of interest or explanatory made while Copper was on the decline, have, in reallty, been but 430 tons in excess of the pre-We invite the attention of manufacturers vious 12 months. The manufactures of Copper to the advertisement, on 16th page, of the are steady at the following quotations: Sheath-Boston to-day (Wednesday) prices were materially reduced. The following is the new price owing circular under date of 17th inst., which lits from which it should be remembered an fully explains itself:

Cincinnati Industrial Exposition for 1874, ing, 33c.; Bolts and Braziers', 35c.; Bronza which will be open to the public from Septemand Yellow Metal Sheathing, 24c.; and Yellow

Tin.—The market has been dull and weak, the business transacted being confined to a job-bing trade, nothing transpiring from first hands during the week in either "spot" goods or "futures." Straits Tin is nominally worth 33½c., gold, on the spot, while it is offering at 33c., gold, afloat, and would, in all likelihood, have to be sold lower if a sale were to be forced upon an, at present, unwilling market. The other descriptions we have to quote very low, also, say Lamb and Flagg, English, at 21c., gold; the latter with some small sales. In English Refined, 21½c., gold; and Banca, 26c., gold the latter with some small sales. In English Refined, 21½c., gold; and Banca, 26c., gold the latter with some small sales. In English Refined, 21½c., gold; and Banca, 26c., gold; the latter with some small sales. In English Refined, 21½c., gold; and Banca, 26c., gold; and gold the latter with some small sales. In English Refined, 21½c. the business transacted being confined to a jobbing trade, nothing transpiring from first hands during the week in either "spot" goods or "futures." Straits Tin is nominally worth 231/cc., gold, on the spot, while it is offering at 23c., gold, affoat, and would, in all likelihood, have to be sold lower if a sale were to be forced upon an, at present, unwilling market. The other descriptions we have to quote very low, also, say Lamb and Flagg, English, at 21c., gold; English Refined, 21%c., gold; and Banca, 26c., gold, the latter with some small sales. In Eng land the market has also been giving way once more. Straits and L. & F. declining, as per latest cable advices, to £100, and English Refined to £103-in other words, the decline amounts to £2 all round for the past week of ten days. The visible supply of Tin in Europe i. e. the stock in London and Holland of all kinds, and afloat for Europe from the Straits, Billiton, Banca and Austrelia, amounted to 9306 tons on the 1st instant, against 9124 a year ago, and 6918 in 1872, thus proving to be but a trifle in excess of last year, but a great deal in excess of 1872. One of the metal firms in Holland, under date of 9th instant, writes to the following effect: "The total stock of Tin here, in Holland, and affoat is almost exactly the same as on March 1st. During these three months there have been very small shipments of Straits (only 100 tons are now affoat). Holders at Penang are not inclined to accept the late ruling prices, consequently there are some 2000 tons of Tin stocked there, which will come on the market at some price. Cornish producers also continue to stock, and there are now about 1000 tops of Ore thus held. There is still a large demand for English Tip, and it is believed that there have been considerable bear' sales of English made, which are not yet covered. If Cornish producers continue to stock, these sales will be covered with difflculty. Smelters are picking up all the parcels of Australian Tin they can meet with." Tin Plates.—A fair jobbing business has been and is Wolfe & Co. passing, but prices remain unaltered: I. C. Charcoal, \$10.25 @ \$10.50, gold, per box; I. C. Coke, \$8.25 @ \$8.75; Coke Terne, \$7 @ \$8; and Charcoal Terne, \$9 @ \$9.50, all gold. Lead .- There is a better feeling in the mar

Lead—The man belter feeting to the the control from the and people for this questions and control from the and people for this questions and control from the and people for this questions and control from the and people for the questions and control from the and people for the questions and control from the and people for the questions and control from the people for the people ket, and people in this particular metal, and in

#### IMPORTATIONS.

Of Hardware, Iron, Steel and Metals into the Port of New York, for the week ending June 23, 1874:

The second secon	Hardware.  Baker & Co. Casks. 4  Bessels, Beroizheimer & Chaskel, Cases, 2  Edwards Armory, Guns, cs. 11  Field A. & Co. Mdse, piggs., 37  Fieitmann & Co. Wire, pkgs., 59  Frasse P. A. & Co. Fackagea, 2  Friedmann & Lauterjung Cuttery, cs., 3  Files, cks., 8  Edge tools, cks., 3  Cuttery, cs., 3  Mdse. Cs., 1  Law & Co. Guns, cs., 5  Laughland & Co. Wire, pkgs., 13  Lau & Gorichs.	Order. Sheet, bdls., 1100 Spiegel, lots, 1 Plg, tons, 246 Steet. Drexel, Morgan & Co. Bundles, 139 Cases, 2 Goodwin & Sons, Bundles, 38 Hogan John, Cases, 23 Casks, 4 Naylor & Co. Raile, 4499 Cases, 31 Tires, cast, 4 Prosser Thos. & Son, Spring, bdls., 111 Robbins C. & Co. Packages, 29 Vose, Dinsmore & Co. Bundles, 10 Order. Spring, tons, 40 Hails, 3112 Bundles, 799
I	Mdse. pigs., 6	Metals.
-	Lennox E. S. Wire, lots, 467 Clothes line wire, cks, 1 Merchants Dispatch Co. Arms, cs., 7 Schoverling & Daly, Mdse, pkgs., 1 Van Neet A. R. & Co. Caske, 1 Van Wart & McCoy,	Arkell, Tafts & Co. Tin. ingots, 247 Tin. bxs., 1322 Byrne Joseph & Co. Tin plates, bxs., 24 Bruce & Cook, Antimony, cks., 17 Tin plates, bxs., 82 Dickerson J. S. & Co. Element J. S. & Co. Element & Element

Figuera J. Lead, pigs, 1400 Hoe R. & Co. Brass, bbls., 53 Casks, 1
Waefelaer & Duyster,
Hook nails, cks., 105
Wiebusch F.
Chains, kegs, 73; cs.,
33; cks., 14
Anvils, 160
Order. Hoe R. & Co.

Binss., bbls., 53
McColl Duncar,
Scrap, bbls., 1
Morrill Jos.
Barap copper, Ibs.,
12:10
Montell F. T. & Sons,
Scrap, brass, pkgs., 7
Scrap, lead, pkgs., 2
Naylor & Co.
Tin plates, bxs., 650
Phelps. Dodge & Co.
Tin plates, bxs., 32,-915
Antimony, cks., 100
Zinc, sheet, cks., 80
Reed P.
Scrap, bbls., 3
Windmuller L. & Roelker

Casks, 10

	Lump.	Steamer.	Broken.	-	Egg.	Stove.	Chestnut.	Washed Pea
L. & W. C. Co.'s.	8		8	1	8	8	1 \$	8
Wilkesbarre	4 93	5 05	5 1	5	5 30	5 8	0 4 75	2 75
Old Co. Lehigh	5 90		5 8	5	5 85	6 0	0 5 03	4 00
L. & W. C. Co.'s, Plymouth Red Ash L. & W. C. Co.'s,			5 1	5 8	5 30	5 9	0 4 75	
Honeybrook Le-	5 75		5 7	0 8	5 70	5 8	5 4 90	4 '00
Spring Brook Le-								
high			0 7	0 0	70	5 8	5 4 90	4 00
Room Run	5 40		5 4	0 5	40	5 7	5 4 75	4 00
Fulton Lehigh	5 90	* OF	9 8	0 0	85	6 0	15 06	4 00

Sign, gold, for both Foreign and Domestic.

Antimony.—Little doing; we quote the same 12%c. @ 12%c., gold.

OLD METALS, PAPER STOCK, &c.

The market for old metals, rags and paper stock still continues very dull, and we see of no prospect of business soon reviving. It is reported that dealers are selling their Old Metals styling are not verified. There is no doubt styling are proved that dealers are selling their Old Metals styling are not verified. There is no doubt styling are not verified as a point of the scensity of orders. Price same are closed—some for no. 1 Wrought.

Scenis a pound. White linen rags are still in good demand. The purchasing prices offered by the dealers are as follows.

Old Metals.—Copper, 16c. @ 18s., per lb.; Yel, low Metal, 11c.; Brass, 11c. @ 12c.; Composition of the carrying companies as well as at the mines, which offer temporary obstructions to active working, and occasion will probably be taken to the ference to the matket. There were some reports in circulation during the work and the market been maked that there some the scale of the week just assed. The milk are market from the week just passed. The milk are market from the week just passed. The milk are market from the week just passed. The milk are were some reports in circulation during the work of the week just passed. The milk are market present on change to the profice of the week just passed. The milk are were assent to the market present on change to profice to the week just passed. The milk are market from the week

moreland Gas, \$7.50 @ \$8.

The demand for Foreign is quiet, and prices are lower. The quotations are: Liverpool House Cannel, \$18 @ \$19; Liverpool Gas, \$11; Newcastle Gas, \$7 @ \$10; Scotch, \$8 @ \$10.

The Coal shipped over the Cumberland Branch Railroad during the week ending June 13, 1874, amounted to 7421 tons, as against 5863 tons shipped in the corresponding period of last year, showing an increase of 1558 tons. Over the Cumberland and Pennsylvania Railroad, for the same period, the shipments were 50,330 tons, against 52,913 in 1873, a decrease of 2582 tons.

#### PHILADELPHIA.

PHILADELPHIA, June 23, 1874. The situation is without material change to note, unless it be a general expectation of bet ter things, and a feeling of satisfaction in all branches of trade that the currency question is definitely settled for the present, and upou less objectionable terms to both parties than was considered possible. Whatever of activity was to be noticed during the past ten days has been fully maintained, and the inquiry for most grades of iron is, if anything, stronger than last week. Forge irons, for fall deliveries, are most sought for, and at present prices are considered cheap, although comparatively too

during this dull month to effect these necessary improvements and repairs.

"But, all things considered, the Anthracite Coal trade, in all its branches of production, transportation and consumption, is in a more healthy condition than almost any other great interest, and is certainly sounder than could reasonably be expected in view of the general depression. The net increase of profits of several of the carrying companies is reported something in excess of those of last year to the same time, and, what is of first importance, there is a good understanding between the workingmen and the operators. There is a fair movement in Cumberland Coals for steamship purposes and manufacturers' use. Prices, however, rule low."

The market for Bituminous Coal still continues meagre, being restricted minipt to supplying immediate wants, although there is a stronger feeling; this is evident from the fact that while there is less offering there is the fact that while there is less offering there is in a stronger feeling; this is evident from the fact that while there is less offering there is no doubt but the fact that while there is less offering there is no doubt but the fact that while there is less offering there is no doubt but a considerable amount of goo? Forge Iron to the markets, but, in the present condition of the markets, but, in the present condition of the markets, but, in the fact that while there is less offering there is no doubt but a considerable amount of goo? Forge Iron doubt but he fact that while there is no doubt but a considerable amount of goo? Forge Iron doubt but he fact that while there is no doubt but a considerable amount of goo? Forge Iron doubt but he fact that while there is no doubt but a considerable amount of goo? Forge Iron of the markets, but, in the present condition of the markets, but, in the fact that while there is no doubt but he fact that while there is no doubt but he fact that while there is no doubt but he fact that while there is no doubt but he fact that while there is no doub appears to be gaining all around that the market has certainly touched bottom. The production is steadily falling off, furnaces that have not done so already will blow out as scon as they have worked up what stock they have on hand, and the indications are that there will be a pretty general suspension within the next thirty days, which, taken in councetion with the fact that the article has not been bringing within three to five dollars per ton of actual cost for several months past, cannot well fail to stiffen up the market. Prices, as compared with last week, have undergone no quotable change, but as already intimated, there is a decidedly firmer feeling, and decreased offerings with more inquiry.

## QUOTATIONS. | No. 1 Foundry | \$28.00 @ 80.00—4 mos. No. 2 Foundry | \$27.00 @ 28.00—4 mos. Gray Forge | 26.00 @ 27.00—4 mos. White and Mottled | \$25.00 @ 26.00—4 mos. Hot Blast Charcoal | 30.00 @ 35.00—4 mos. Cold Blast Charcoal | 50.00 @ 55.00—4 mos. Blooms, according to quality | 80.00 @ 90.00—4 mos.

	quotatio		ne	re	Ran	ueu	1 110	the rui	ing buyin
	Boiler Pl	ate						. per net	ton, \$33
	Blacksmi Car Sprin	108	rap					- 44	45 d
	No. 1 Wr	ough	t Ti	arn	ing	ζB		. 66	** 25
	Light Iro	n							15 15 1
	Railroad	Scrap	p					. 64	41 304
	Cast Iron								181
١	Stove Pic	els					1	per gross	

,	prices as follows.
١	CHARCOAL PIG IRON FROM L. S. ORE.
,	Nos. 1 and 2 Foundry\$40.00-4 m.
ı	Nos. 8 and 4 Car Wheel 42.00-4 m.
,	Nos. 5 and 6 45 00-4 m.
٠	Bessemer Metal, Charcoal 40 00-4 m.
	Bessemer Metal, Bitaminous 30 00-4 m.
	BITUMINOUS PIG IRON FROM L. S. ORE.
	No. 1 Foundry \$32.00—4 m.
	No. 2 Foundry 30 00-4 m.
	No. 1 Gray Forge Red Short 28'00-4 m.
۱	No. 1 Gray Forge Neutral 27:03-4 m.
	White and Mottled 26'00-4 m.
1	PIG IRON FROM BLACK BAND ORES.
1	Massillon No. 1 \$35.00—4 m.
1	Massillon No. 2 83 00—4 m.
I	"New Gartsherrie" No. 2 35'00-4 m.
1	Muck Bar

tories are all busy running on orders, of which they have enough to carry them over thirty days.
We quote prices from store here:

	R	a	te	e E	,	6	0 days.
Bar, Band and Hoop Iron							2'7C.
Sheet Iron, No. 24				,			4 '7c.
Nails, 10d. to 60d							
Ship Spikes, % and larger			٠			0	\$4.25

#### CINCINNATI.

Messrs. ADDY, HULL & Co., under date of June 22, write us as follows: The past week has been marked by some increase in the inquiry for Foundry Irons. Views of buyers seem to tend, however, to still lower prices, and nearly all consumers hesitate to engage more than sufficient stock for immediate use. There is no demand for Forge Irons. Car Wheel grades have but few buyers at reduced prices.

#### HOT BLAST CHARCOAL.

Hanging												
10	0.0	1	No	. 2	١.	 			 85.00	60	34'00-4	mo
8-6	0.6	1	O	rg	e.				 29.00	600	80.00-4	me
Tennesse	e No	0.	1.						 32.00	60	34.00-4	me
16	Fo	re	OF .			 	 		 29.00	60	80.00-4	mo
Alabama	No.	1.							 82.00	Cu	84.00-4	mo
Missouri	No.	1.							 86.00	00	87.00-4	mo
										60	36.00-4	me

#### HOT BLAST STONE COAL. Missouri No. 1.... .. \$2 ton. . \$35.00 @ 36.00-4 mos.

" Forge	29.00 @	30°00—4 mos.
Ohio No. 1	83.00 @	85°00—4 mos.
" Forge		30.00-4 mos-
Scotch Pig, No. 1		
COLD BLA	ST CHARCOAL.	
Hanging Rock Car Whee	el # tn.\$50.00 @	52.00-4 mos.

Hanging Rock	Car V	Theel	18	tn	.\$50.00	0	52.00-4	mo
Missouri	44	44			. 50.00	0	52.00-4	mo
Kentucky	6.6	6.6			50.00	(0)	52.00-4	mo
Tennessee		6.6				60	52.00-4	mo
Georgia	86	6.6				a	52.00-4	mo
Alabama	66					(0)	52.00-4	mo
Machinery and	Fore						4	
Blooms					90:00		95 00-4	

66	2	66		9.0	6.6	6.6		30°00 @	n 32.00
6.6	1	Forg	e.	4.6	6-8	6.6		27.00	
6.6	1	F'dry	r. fro	m Ten	nessee O	res		32.00 @	
66	2	60	,,	60	9.0			28.00 @	
8.5	1	Forg	e.	4.6	, 46			26.00 @	
44			v. fre	na Alab	ama Ore	es		82.00 @	
8.0	1	66	61	Iron	Mounta	in Ore	. 8	84.00 €	
			I	OT BLA	ST STON	E COA	L.		
No.	1	F'dry	, fro	m Miss	souri Or	es		83.00 @	2 34-00
66	3	46	,	66	. 116			88.00 @	
66	1	Forg	e,	6.6	**	4.6		26.00 €	
				COLD BL	AST CHA	RCOAL			
Car	W	heel	from	Hangi	ng Rock	Ores		50.00 @	b 54.00
	44		4.5	Tenn	essee Or	cs		48.00 €	50.00
			8.6	Alaba	ma Ores			50.00 €	2 52 00
	6.0		6.6		da Ores			50.00 @	

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	1 to 6 wide by 1/2 to 1 thick. 2.9 to 3.1 cts.		_
	1 to 4% wide by 1% to 2 thick i 2 9 to 3 1 cts.	per	I ID,
	Round and square, ordinary sizes, from		
ı	% to 2 inclusive 2 9-10 to 3 1-10c.		64
	Hoop Iron, 1% wide and upward 4% to 5c.		6.6
١	Bana Iron, from 1% to 4 in. wide 4 to 4%c.		14
١	band from 134 to 4 in. wide 4 to 4 %c.	,	14
1	Horse Shoe Iron % to 1 wide by % to %		
1	thick 436 to 5c.		8.6
ł	Norway Nail Rods 78 to 84c	-	183
ı	Black Diamond Cast Steel, Flats, Squares		
1	and Octagon, ordinary sizes16%c.	4	
1	Manhaman Stanl		
ł	Machinery Steel		10
ĺ	Cast Spring Steeliic.	- 6	4
ĺ	Homogeneous Steel Plate 13c.		.0.
ĝ	Perkins' Horse Shoes, per keg of 100 lba	@ #K = 6	2W L
ı	Mule Shoes	an c	
l	Common Horse Nails, from 14c. to 18c. per pour	0.5	3736
ì	Common Horse Manis, from 14c. to 13c. per pour	ad,	
Ĭ	10 9 8 7 6		
ľ	Putnam Horse Nails. 23 24 25 26 28c. 1	age	Th.
г	10 9 9 9		

FRANCE.

FRANCE.

(Moniteur des Interets Materiels.)

Panis, June 7, 1874.—Copper.—The general European trade returne in this meta have proved favorable beyond expectations; especially has this been the case as rega. ds England. The dwindling away of stocks has been very nearly imperceptible at the time during the past month, being in moderate quantities, but on all hands and most steady. It need not cause surprise, therefore, that the discovery of the altered position of Copper in Europe came so suddenly, when finally the statement was published. It is to be hoped now that the upward movement inaugurated in the metal may not overleap itself, for we fear much that too rapid an advance would check at once legitimate consumption, and thus eventually produce a serious recoil. We may here remark, with reference to the English smelting interest, that in 1873 the smelters in the United Kingdom were supplying their orders very much from their own stocks, accumulated during 1873, whereas up to the present period this year, with a so much lower range of prices, they have been supplying the public from new purchases made of the importers, but upon the "hand to mouth" principle, carried on now by almost the entire trade. The following statistical exhibit, which we take from one of the best Copper circulars just to hand from London, will probably convey the correctest idea as regards the position of the staple in England and at Havre:

June 1. Chili bars. 1870 £68 1871 65 1872 107 1873 84 1874 75	Stock, Liver- pool, Swansea, London and Havre.	Stock, afloat and chartered. tons. 43,283 43,677 35,495 38,984 34,238
Average 79. 1		89,135

Average... 79. 16/ 28,876 39,135
The foregoing goes to show that on the 1st inst. Chill Bars still stood £4. 16/ below the average of the past five years, 1874 included; that the stock showed a 1354 ton deficiency as compared with the average, and one of 3390 from last year, the decrease in stock, afloat and loading, being 4897 on the average, and 4746 on the year. The present gross total of stock and affeats very nearly approaches that of June 1, 1872, while quotations were then £32 per ton higher, and whereas at that time there were large parcels of Copper on the way to England from India and Japan, which not only as not the case in the present instance, but England is now shipping to India in quantities sufficiently large to make an impression on the English market while the movement lasts. The improvement in England to date is £4 per ton on Bars since the 1st inst. The Continental markets follow slowly the English course of prices, with a moderate consumptive inquiry. We quote as follows: Paris—Chill Bars, 10250 to 202; Refined Ingots, 210 to 217.50; pure Peruvian Ore, 197.50 to 260; old Copper, 185 to 180; old Xelow Metal, 120 to 130; Horoze, 163 to 170 francs Marseilles—Spanish, in slabs, 200; Refined Ingots, 210; trancs. Berlin—Swedish, Fahlun, 2836 to 2936 thalers; English, 2836 to 2936; Refined Chill, 2836 to 2937; and ditto, 220 francs. Berlin—Swedish, Fahlun, 2836 to 2936 thalers; English, 2836 to 2836; Refined Chill, 290 to 10; Yellow Metal Sheathing, 81; Copper Sheathing, 230; Yellow Metal Sheathing, 81; Copper ditto, 93. Stettin—Swedish, English and Chill, 290 to 10; Yellow Metal Sheathing, 81; Copper ditto, 93. Stettin—Swedish, English, 36 to 55 guilders. Tis—We have again to resert to statistics of a more general European character in order to be able to form a somewhat correcter estimate of the actual position of the metal:

June 1st. 1874. 1873. 1872

June 1st. London	tons. 2,388	tons. 1,960	1,850
hands). Billiton there Stratts afloat for Europe Billiton. Australian.	873 1,065 262 699 536	1,530 385 538 495 113	1,476 190 1,638 400 98
4.0	5,818	5,090	5,684

From what precedes it will be seen that the London stock, though it has decreased 100 tons during May, is still large, that the Banca supply in Holland in dealers' hands is still quite moderate, a though it necessed 600 tons in May, that the Billiton stock in Holland is still extensive, and that a fair supply is on the way from Australia, though lessened by some 500 tons during the month. To the foregoing there have to be added:

1874.

1873. tons. 3,116 918 3,488 4,034 1,284

The tone which has prevailed in the European Tin markets in general, and the English and Dutch in particular has been one of business, devoid of excitement, since the sale which took place toward the close of last month, the tendency being a gradually apward one, based altog-ther upon a growing demand for consumption in Holland, and not on the preceding statistics, which show a visible supply between England and Holland of 900 tons, against 9124 and 6918 to 1813 and 1872. The following are the Continental quotations, aside from Holland, the markets being steady, on the whole, without overmuch doing: Marcellies, Straits, 265 francs; English, 270. Paris, Banca deliverable at tlavre, 265; Straits, 263%; English, at either Havre or Rouen, 267%. Havre, Straits, 280 to 265. Berlin, Banca, 36% to 364; English, 244 to 35 thalers. Hamburg, Banca, 1'12 marks. English, 1'86; M. R., 1'10. Lead.—A good deal of animation is observable in this metal, both in England and on the Continent. If we are to believe the assurances of the London Times, itch lead mines are about to be developed in the county of Aberd en, Northeast Scotland, nine miles from Balmoral, in the Hailater Mountains. A vein rich in galena had been discovered 2 feet 6 inches in thickness, intercepted by a rock, evidentiv rolled down on it from a neighboring hill. In following up in this direction a continuation of the deposits has been discovered, the leading vein being but 10 feet below the surface. The course of prices on the Continent has been a slowly hardening one, and we quote them as follows: Paris, 53 francs; Havre, 50 to 51; Marseilles, 47% to 48; Berlin, 8% to 9; Amsterdam soft lead, 18 to 13%, and Roterdam of the decourte of the surface of the surface of the counter of the surface of the surface of the surface of the counter of the surface of prices on the Continent has been a slowly hardening one, and we quote them as follows: Paris, 53 francs; Havre, 50 to 51; Marseilles, 47% to 48; Stettin, 8% to 9; Amsterdam soft lead, 18 to 134, and Roterdam sof 53 to 9; Amsternam soft lead, 15 to 153; and Accterdam ordinary to good brands, 123 to 1524. Spelter is quiet and steady in the various European markets. We quote the Continental ores as follows: Paris, 57 to 58; Havre, 57; Berlin, W. H., 73 to 73; Breslau, 64; Stettin, 8; Hamburg, 21:80 to 22, and Amsterdam, 13 to 1334. Iron.—The general outlook in France is a decidedly improved one, especially as regards Rai's, while Wrought Iron is less inquired for; the former, 2:50 francs could be obtained for, we think, at present. Coal is arm without any change in warm.

### Our English Letter.

Review of the British Iron, Steel, Metal and Hardware Trades.

> (From our Regular Correspondent.) SHEFFIELD, Eng., June 8, 1874. THE TRADE OUTLOOK

is not, by any means, brighter than when I had last the privilege of staining paper on your account. It is very difficult to balance the many and weighty pros and cons which can be put forward by parties holding opposite views as to the length of time the present depression sto the length of time the present depressal will last, and it is a still more trying task to analyze the causes which may, nay, must, lead to a given effect in either one or the other discussion. It is urged, sind not without reason, that we as a nation cannot stand still, that we must go forward in all material works in order to provide for our growing prosperity and to provide for our growing prosperity and hightened civilization, and that therefore the iron trade, as our most important material industry, cannot long remain under a cloud. I will not do myself the fojustice of stating that I altogether endorse this opinion, there being, as a matter of strict fact, a good deal to be said

on the other side of the question. For instance, it is put forward as an undoubted circumstance that the world is now able to look to several sources for its supply of iron other than our own manufacturers, who formerly had than our own manufacturers, who formerly had a virtual monopoly of it, and that, therefore, buyers have alternate courses open to them, which they very naturally manipulate so as to bring about a keen competition with an attendant drop in prices. If one cannot sell at the buyer's ideal price another may, hence, if Great Britain's figures are too high, which happens to be the case just now, she must kindly wait in enforced divorce from customers until ske is able to meet them upon a footing which is not above her competitors. How she effects the drop is a matter of little consequence to the buyer. He is perfectly indifferent to effects the drop is a matter of little consequence to the buyer. He is perfectly indifferent to everything but the one result in which he is interested, which is to buy at the lowest possible rate. If none of the producers can sell at what he deems a reasonable rate, he will withold orders for all but absolutely necessary goods, and either wait for the fall or waive the requirement entirely. That is one item of the indictment—the others are those which concern the internal arrangements of the British from the internal arrangements of the British iron trade, and therefore need not be dwelt upon. One thing, at least, I think we may accept as One thing, at least, I think we may accept as very clear, and that is that the consumer in any part of the world owes no such thing as gratitude either to Great Britain or her manufacturers. With him the question has been, is, will be, the purely commercial one of buying cheaply; and if Great Britain cannot supply him he will transfer his support to those who can, whether they be Belgium, French, American or German manufacturers. To talk, as some British papers weekly do, of "gratitude" and all the rest of the sentimental side of the matter, is simply rubbish. There isn't

can or German manufacturers. To talk, as some British papers weekly do, of "gratitude" and all the rest of the sentimental side of the matter, is simply rubbish. There isn't much "gratitude" in the world, and in business there is absolutely none at all. There, it is the all powerful law of supply and demand. The consumer doesn't care a "tin cent" for the producer unless he thinks he is being supplied as cheaply as his neighbor. Let us now see what our worthy newspaper friend, the Economist thinks. In dealing with —Possibilities of the iron trade for the extreme rise, so long as there was a full demand for the articles produced, implied a rate of wages and profits in the trade disproportionate to the ruling rates in other trades, allowing for all the differences of risk, disagreeable character of the labor, and the like. Consequently, both capitalists and laborers will probably be satisfied in the long run with lower wages and profits than the extreme rates which tempted them into the trade, so long as these wages and profits are not disproportionately low compared with other trades. There is a large margin for a fall without constituting such a condition of things as will induce capital and labor to forsake the trade either quickly or by degrees. There is yet another reason why a further fall should be anticipated in the continued temptation to labor to come into the trade while a regime of high prices is maintained. If existing workmen in the trades decline reduced wages, there is still a certain quantity of labor to which these wages are attractive, and the entire producing capacity is consequently increased. If the case were that of capitalists standing out for unduly high profits, the effect would be precisely the same. The maintenance of the regime of high prices is maintained. If existing a rest a decline, unless capital and labor abandon the trade altogether. Any artificial means of keeping up the price, such as a reduction of the output, only nourle hand strengthen the causes which produce the decline. lows from this account of the present check to the fall in coal and iron, that at a certain level a very good trade may spring up. What that level exactly is, whether the price at which coal and iron stood before the recent infation began, or a somewhat higher price, cannot be determined easily beforehand; but there is plainly a large demand in the suspense which will become active at a lower price. All the reports from the iron districts refer to orders which are kept back because of the high price, and many departments of the trade are also such that, from their nature, the demand must be of the most varying kind, and be greatly influenced by price. The products of the iron and coal trades are largely used in the creation of fixed capital—the construction of naw railways, and structures of every sort, or additions to old undertakings. A demand for such purposes is of a very optional character. Unless the price suits, and gives sufficient promise of profit, new undertakings which would otherwise be made will be kept back, and the capital which might be used in them will accumulate in the banks and depress the rate for money. This is all the more likely to be the case because many of the undertakings are the projects of speculators who propose to construct them with borrowed money, and to whom a slight difference of cost on account of the risks run and their inability to hold may be all important. ence of cost on account of the risks run and enes of cost on account of the risks run and their inability to hold may be all important. Hence to a large extent the great diminution of con-umption which has paralyzed the fron and coal trades, and which makes the restsance of the workmen to the reductions of which notice has been given the record of solutions. the workmen to the reductions of which notice has been given the more difficult; but hence also will come the recovery of the trade at a proper level of prices. The optional demand is quite certain to become effective at some point or other, and it may quickly equal the producing capacity of the trade just because of the large amount of eapital now seeking investment, and which, for want of better employment, will directly of indirectly be available for new works. To all imbegrance the present contest may go on directly of indirectly be available for new works. To all hepearance the present contest may go on for some time until the workmen have exhausted the small surplus remaining in their hands after the recent inflation, but the subsequent recovery will probably be very rapid."

This would appear to be a dispassionate view of the question, but despite its unquestionable probability, I think we must at present deem it a mere speculation.

it a mere speculation.

THE SCOTCH PIG IRON MARKET is still in a very peculiar state, of which certain keen speculators have not failed to take advantage during the past week, and have made a very plucky attempt to rig the market. As a consequence of this speculation warrants went up steady during the whole of hist week until Fridey of terroon, when there was a page and

"It is rumored that several furnaces are to e put in blast this week, and it is much to be esired that things may gradually assume a nore natural aspect, as the present anomalous tate of matters only tends to increase the prealing depression and render a continuance of we prices and reduced wages the more propagate."

"It is rumored that several furnaces are to best ivory table cuttery and carvers, but common descriptions are not inquired for to any appreciable extent. Spain, the Indies, Africa and South America are taking small and mixed lots of goods, but, on the whole, the trade remains quiet and little changed. be put in blast this week, and it is much to be desired that things may gradually assume a more natural aspect, as the present anomalous state of matters only tends to increase the prevailing depression and render a continuance of low prices and reduced wages the more probable."

bable."
Messrs. James Watson & Co's. Glasgow weekly report, of June 5th, says: "No change to report in the position of the Labor question. Masters and men are as obstinate as ever,

tion. Masters and men are as obstinute as ever, iron therefore gets daily scarcer, warrants dealt in from 90 / to 95, 8 closing to-day at 93,6. We are still unable to quote for makers' iron. Shipments last week were 7016 tons against 16,890 tons in the corresponding week of 1873."

There are now only 70 furnaces in blast in Scotland as against 123 at the same period of 1873. Freights from Glasgow and Ardrossan to New York continue at 8/, and from the East Coast 5/. To Boston from Glasgow and Ardrossan 18/ and East Coast 12/6. To Baltimore 17/, 17, 6 and 14/ respectively. To New Orleans 20/, 20/ and 9/. Total shipments this year 184,538 tons, a decrease comparatively since Christmas of 104,669 tons.

THE SHEPPIELD TRADES.

There is very little animation in any one branch of trade after the holidays. Most of the works resumed on Monday or Tuesday, the in-terim having been utilized in repairs and re-

A moderate amount is being transacted in fronstone and ores, the former from Northamptonshire and Lincolnshire, and the latter from Whitehaven and as imported from Spain, Algeria

Whitenaven and as impossed in price, and ance Elba.

Hematite ores are unchanged in price, and Bessemer hematite pig iron is—No. 1, £6; No. 2, £5. 17/6; and No. 3, £5. 15/; ordinary No. 3, £5. 10/; No. 5, £9. 10/; m., £7. 5/; and w., £7. 5/. Cleveland pig is firmly held by agents. Scotch pig cannot be had at any price by founders, who prefer it when obtainable. art. of; and w., 2.1. of.

beld by agents. Scotch pig cannot be had at any price by founders, who prefer it when obtainable.

The iron and steel works are only about half

The iron and steel works are only about half employed, there being very few new specifications of any weight in the market for rails or other railroad materials.

There is but an indifferent inquiry for cast steel, except for the very best quality for Germany and America, or the bome market.

Files, saws and edge tools are in fairly good but not active request, chiefly in the last case for Australia, India and the Cape. The question of the miners' wages in South Yorkshire and Nort's Derbyshire can hardly be said to be settled even yet. On Thursday last the adjourned meeting of the district colliery owners was held at Barnsley to receive the reply of the journed meeting of the district colliery owners was held at Barnsley to receive the reply of the miners as to the proquosed reduction of 12½ per cent. In their wages. Mr. Stewart, Lundhi I. again presided, Messrs J. Normansell and Casey, secretaries, with a deputation, attended and explained the decision to which the men had come. After some discussion it was agreed that the men should be asked to accept a drop of 10 per cent, on the gross cognings to take. that the men should be asked to accept a drop of 10 per cent. on the gross carnings, to take effect from May 20, as previously arranged, or that they be asked to accept a reduction of a like amount for a perfod of two months, afterward to agree to whatever drop may be awarded by Mr. Rupert Kettle as arbitrator in the case of the West Yorkshire mners. Some of the delegates are understood to have stated that they considered this proposition a reasonable one. The deputation, on the part of the Miners' Association, promised their final reply on Monday. The same evening a mass meeting of some 3000 miners was held at Barnsley, at which the officials of the association were censured in no measured terms; but after a good deal of vapid speaking the meeting dissolved without any practical resolution pring arrived.

deal of vapid speaking the meeting dissolved without any practical resolution being arrived at. On the Monday a largely artended meeting of delegates from the various lodges of the Miners' Association was held at Barnsley, at which the resolution of the employers was somewhat feelingly cauvassed. It was ultimately decided to adhere to the resolution passed on May 22d, to submit to a reduction of 10 per cent. from the 57½ per cent. given since 1871. A copy of this resolution was sent to the secretary of the Coalowners' Association on Tuesday, and also to the members. I may state that at the meeting about 24,000 miners were represented, and that it is deemed bighly probable that in many cases the men will be locked out by the masters. If this unfortunate contingency should rice, it will be a matter for much regret, and white in direct opposition to the advice prudently and wisely given to the men by the secretaries of their union, Messrs. Normansell and Casey. These gentlemen have, in fact, done all they could to avoid a dispute, a circumstance not a little to their credit.

On Monday, at Leeds, an adjourned meeting

could to avoid a dispute, a circumstance not a little to their credit.

On Monday, at Leeds, an adjourned meeting was held of the creditors of Messrs. Tyers, Middleton & Co., Hunslet Iron Works, Leeds. The liabilities of the firm were stated to be over £100,000, with assets as a going concern of equal amount. It was stated that the firm had been unfortunate with respect to certain of its equal amount. It was stated that the firm had been unfortunate with respect to certain of its mechanical appliances, and that trade disputes and other unusual matters have disturbed the ordinary working arrangements of the concern. It was unanimously resolved to wind up the estate by liquidation in bankruptey.

It is understood that at the meeting of the Yorkshire Engine Company, held on Monday, there was no dividend declared, owing to there having been a protracted strike of the workmen during last year. It is, however, stated that the company has now several good orders on its books.

On Friday a further meeting of the share-holders of the Albien Steel and Iron Works, limited, Sheffleld, was held, at which it was stated that about £21,000 worth of debentures

had been taken up.

It had been expected that this week would have brought a reduction in the price of coal, but up to the time of writing none has been announced. In the Dronfield district of North nounced. In the Dronfield district of North Derbyshire the coke producers have reduced the price of hard coke by 2/6 per tou, making it 25/ for that quantity. Very little coal can be got by the local merchants; consequently, they have no difficulty in disposing of that which reaches them. A merchant doing a good business informs me that from one really large pit for which he sells he has had about four wagons in a fortnight. The men are not working well, and it is hardly the interest of the owners to ask them to do so.

It will be gathered from the nature and tenor of the foregoing observations that trade news is abselutely and decidedly at a great discount; the matter of most moment, seeing that it effects all the Sheffield trades, is the miners' wages question. Should it be peacefully settled I shall expect to hear of a drop in the price of common steel. Speaking of steel reminds me that several of the Sheffield manufacturers have received letters from their New York agents, stating that the committee appointed by Congress to examine into the question of duties, have decided to recommend a return to specific duties, with a charge of two cents per lb. upon all kinds of steel without distinction. The Sheffield Independent says: "This is the very thing the steel manufacturers desire, but it is not probable that it will come into operation. It was be gathered from the nature and tenor

BIRMINGHAM AND DISTRICT.

The hardware trades of Birmingham and its The hardware trades of Birmingham and its satellite hurdware towns are very quiet. The home trade is now the mainstay of many branches, particularly for Britania metal and electro-plated goods, tools, brass-foundry and japanned ware. The demand from Japan is stated to be pretty good for heavy hardwares, fron sheets, fancy goods and tools; from India for edge tools and machinery, and from one or two other distant markets for tools and miscellaneous hardwares. In the last, German competition is much felt in several classes of goods. From the United States it is stated that there are a few specifications for special brands of iron, hoops for cotton ties, curry combs (which, as I last week stated, were 2½ per cent. lower) sieel ware and guns for birding. The engineers and machinists are still well amployed on steam-pumps for mining and other similar purposes, engines for threshing and other agricultural purposes, and sugar mills for Eastern Europe and Egypt. There is a fair inquiry for plantation hoes, matchets and some other collateral goods for In lig and South America. The atellite hardware towns are very quiet. The lantation hoes, matchets and some other colla eral goods for India and South America. The teral goods for India and South America. The steel pen manufacturers are taxed to the utmost rapacity to fill orders, as also are the makers of outtons, and manufacturers of railway rollingstock. There is a slight improvement in the native for sheet iron goods, buckets, scoops and the like, consequent upon the drop in orders of 5 per cent., but as stocks are very arge the effect upon the makers is not yet raisble. The lamp trade is not very buoyant, but there is a fairly austined inquiry for carriage visible. The lamp trade is not very outstant, but there is a fairly sustained inquiry for carriage lamps. For brass himses, brass locks and window fastenings the demand is particularly brisk just at present. The locomotive tub producers are fairly busy, as also are the meta-

f American competition in these terms: America, which has already become a strong "America, which has already become a strong competitor with England's customers in the iron trade, is now competing with Birmingham in one of its own special manufactures, that of jewe'ry, especially cheap goods, consisting of alberts, solitaires, and other articles. The jewelry is gold-plated, and has the exact appearance of nine carat gold, while it stands the acid test like the real metal. The patterns, too, are artistic in design, and differ from that of the English jewelry. The workmanship is characterized by the greatest finish, the links being closed by hydraulic pressure, and the article produced is both ornamental and durable. In the matter of cost the American jewelry is considerably cheaper than that made in this comtry."

of iron in South Staffordshire since the holidays mainly for the home market, but no alteration mainly for the home market, but no alteration in prices with the exception of the drop of bars to £12, by Messrs. Philip Williams & Sons. Some descriptions of sheets are reported to be a trifle firmer, mainly owing to the price and searcity of coal, consequent upon the continued strike of South Staffordshire miners. Quotations are now, bars £10 to £12 (except Lord Dudley's and Messrs. Barrows) £13 to £14 for sheets, £11 to £12 for nail rods and £12 to £13 for hoops. In no description is there much business doing, foreign and colonial specifications being almost wholly absent or of excessively small calibre.

THE SOUTH WALES IRON AND TIN PLATE TRADES.

I am sgain unable to report anything of a satisfactory nature from the South Wales district. The colliers were, up to Saturday, in a most unsettled condition on the wages question, but I learn, by telegraph, that at many pits a sattlement has been effected by the men agreeing to the drop of 10 per cent. Mr. Crawshay evidently means severing all the old connections with a vengeance. In addition to what I have recorded in previous communications, he has given all his men notice that he will blow out every furnace, save one, thus depriving 3000 men of work, beside doing which he has given all his medical staff note, so that henceforth the men must provide medical or surgical attendance THE SOUTH WALES IRON AND TIN PLATE TRADES ail his medical staff notice, so that henceforth the men must provide medical or surgical attendance for themselves, and at their own cost. It is also rumored that the Iron King intends to take the same steps with regard to the schools which he now supports, but I do not think this will be so, owing to the deep interest which I happen to know Mr. Crawshay takes in them. The men have elected to let their engagements The men have elected to let their engagements be of a business nature, as they are finding out to their cost, instead of the almost family conto their cost, instead of the almost family connection which had always previously existed. The result is certainly to be regretted. The iron trade is not half employed, even with rails at £8, a price which does not leave a penny per ton profit, and in some cases involves a slight loss. A corespondent mentions that he has seen the scale of wages paid to the whole of the colliers of South Wales, as prepared by Mr. Dalziel, of Cardiff, secretary to the Coalowners Association. From this it appears that firemen in the Rhondda Valley get £130 a year, the colliers of Brithdir-under Dowlais 72/per week, and all the Dowlais colliers £3 per week, 9/per diem being the average of colliers wages in Wales, taking the mean between the highest and lowest, as respectively represented by the Gelli men who have 12/8 per diem, and there at Cilifach, 7.8. Let week Civicrithic. highest and lowest, as respectively represented by the Gelli men who have 12/3 per diem, and those at Gilfach 7/6. Last week Cyr/arthfa was singularly fertile in the way of fatal acci-dents, no less than six lives being lost in two days. In one instance, four men were attend-ing to a blast furnace, when the breast of an adjoining furnace burst, enveloping them in flery metal and flames. Two were so horribly roasted that their remains had to be raked out, and the other two afterward died. Next day roasted that their remains had to be raked out, and the other two afterward died. Next day an engineerand laborer were blasting out some slag from a furnace by means of dynamite, when an apparently missed shot exploded and blew both literally to pieces. At L'antwit Main Pit the boiler blew up, but, although there was much damage, no lives were lost. Tin plates are nominally unaltered, the strike being yet unsettled.

THE METAL TRADES.

Messrs. Von Dadelszen & North say: "Coper has at last attracted attention, for the large deliveries last month took every one by surprise Nearly 2000 tons of various kinds of copper deliveries last month took every one by surprise. Nearly 2000 tons of various kinds of copper bave changed hands this week. Chill bars have advanced from £78. 10/ to £77, casū, and £78 with prompt; Wallaroo, £87, buyers; B\_rra, £86. 10/. English copper is firmer also. Tin: We have to report a firm market, but only a moderate amount of business, through scarcity of sellers. Straits, £101; Bancs, £104: Billion, £98 to £99; Australian, £97. The Dutch market has advanced to £60 for Banca, and £58 for Billiton. English is without change. Tis market has advanced to 200 for Buttes, and 25s for Billiton. English is without change. Tin Plates: Not much doing; the lockout still continues, and there appears no prospect of a speedy settlement. Lead in moderate demand, but very firm; £31 the nearest price. Spelter quite neglected; prices nominal; nothing officially reported the last ten days. Quicksilver without change."

pany, held their bi-monthly sale on the 29th ult., when the quantity offired, 23,300 slabs, was sold at an average of 57½ guilders, and has, we believe, gone into strong hands. The price is now quoted 58½, itm; Billiton, 56¾; Straits here, 100 to 101. The following is the state of the stocks on June I, 1874: Foreign in London, including Australian (not orcs) estimated at 2384 tons; Banca in Holland, warrants, 970 tons; Billiton in Holland, warrants, 970 tons; Billiton fin Holland, 720 tons; Billiton tin affoat for Europe, tin from the Straits, advised by mail and telegram, 260 tons; Banca in Trading Company's hands, unsold, 2790 tons; Banca floating, 720 tons; total 8714 tons. Price of Straits tin, £100. Australian affoat as advised by letters: Tin ore, 283 tons; tin metal, 350 pany, held their bi-monthly sale on the 29th Straits tin, £100. Australian affoat as advised by letters: Tin ore, 283 tons; tin metal, 3:0 ons; metal, 510 tons. The arrivals during May

tons: metal, 510 tons. The arrivals during May were 422 tons."

Messes. Sanford & Birds' prices current:

"Metals.—Tin plates: The works in South Wales are still closed, with no immediate prospect of reopening; in the meantime business is restricted to pressing requirements, buyers preferring to weit until the works recommence, and matters are satisfactorily arranged between masters and men. Melyn charcoal, 38/; Afan, 36; Cymro coke, 30/; best charcoal, 40/ to 42/; charcoal, 37/ to 38/; best coke, 35 to 38/; coke, 30/ to 32; terne plates, 27 to 28/per box; black plate, 24/ to 26/per cwt.; clearcoal tin sheets, up to 72x36, 46/ to 44/per cwt.; coke, do, 72x36, 38/10 40/per cwt.; decarated tin plates, 60/per box; continuous terme roofing, 80/per keg of 200 feet by 20 inches."

Messes. J. Fitearin, Campbell & Co.'s fortnightly report: "We have had a sensitive fluctuating market during the fortnight, ending June 1st. It was firm and active up to the 20th, when the advice of charters for second fortnight of April of 2400 tons fine to Europe and 200 to America caused a marked reaction, with a decline of 30/to 40/ on Chili bars. Our closing quotations are £73. 15/to £74, for good ordinary Chili bars, 14/9 to 15/8 for orcs and regulus, 16/to 16/8 for Coro Coro Barilla. Sales for the fortnight consists of 1924 tons ore at 8 wansea at 14/6 to 15/, and 1535 tons argentiferous regulus on private terms; also 275 tons bars at

the fortnight consists of 1924 tons ore at Swansea at 14/6 to 15/, and 1585 tons argentiferous regulus on private terms; also 275 tons bars at £74 to £75 per ton, 550 tons regulus to arrive here st 15/3, and on the spot here 1780 tons bars at from £78 to £76 cash terms, and 125 tons bars at £75, three months prompt. At the Swansea sale on the 26th, 1782 tons ore, average nineteen per cent. produce, sold at an average of 14/10½. Stocks of copper (Chilian and Bolivian) in firstand second hands, likely to be svallable, we estimate at—Liverpool, 2123 tons evailable, we estimate at—Liverpool, 2123 tons ores; 1420 tons regulus; 12.800 bars; Swansen ores; 1420 tons regulus; 12,500 bars; Swansen, 3498 tons ores; 3604 tons regulus; 1604 bars. Total, 5621 tons ores; 5024 tons regulus; 14,404 bars—representing about 18,140 tons fine cepper, against 22,700 tons ditto, on 30th May, 1873, against 13,500 tons ditto, on 31st May, 1872, against 23,900 tons ditto, 1871, against 18,300 tons ditto, 1871, against

#### Exorbitant Rates of Postage to Some Spanish-American Countries.

El Cronista, the Spanish organ of this city, in following up the theme started by us in our issue of June 11, expresses itself about the extra charge of postage on letters and printed matter whenever our correspondence has to avail of British conveyance, to the following effect, in its issue of Saturday last:

"While persisting in ventilating the subject of our Spanish-American business relations, so happily inaugurated by the Iron Age, and the necessity of multiplying our intercourse with the remainder of the new world, we have to point to an obstacle now impeding our prog:ess at the very outset-we mean to allude to the exorbitant rates of postage, especially as regards 'printed circulars;' while to Mexico, Brazil and Venezuela as well as to Cuba the postage thereon is but two cents. We have to pay ten cents to Peru, Chili and the Argentine Confederation; to China, for instance, the postage on letters via. San Francisco is 10 cents: to these South American Republics it is 22 cents and 28 cents. The postage is reasonably cheap the moment we can forward our letters by American packets, while no special convention prevents an overcharge whenever a British packet has to be availed of, and the 'onus' thus fastened upon our intercourse with sister republics is absolutely unbearable.

"We therefore appeal to The Iron Age, and the American press in general, to assist us in devising some means of putting a stop to this extortion; it is a downright shame that it costs more to forward a letter to Peru than to China.

"The only efficacious remedy we know of would be to become independent of these foreign lines, and to have our own steamers plying around the Southern Continent, with the neces sary government subsidies, if need be, to start them and sustain them, provided the lines can give the necessary guarantee of efficiency.

"Do our remaining colleagues of the press ap prove of being pushed in that direction, and is there sufficient spirit of enterprise left in New York to give body to the idea which was initiated by The Iron Age.

"The approaching Chilian exhibition, and the consequences it naturally involves, greatly stimulate an enterprise of the kind."

### The Ore Docks at Cleveland, Ohio.

A correspondent of the Marquette Mining ournal, writing from Cleveland, says : I recently paid a visit to the docks along the old river bed. and interviewed a couple of gentlemanly Cleveland and Pittsburgh clerks. The longest dock there is the one owned and operated by the Cleveland and Pittsburgh Railroad. Their docks are situated on the north side of the channel, between it and the lake. They are all comparatively new, as only within a few years has the railroad company been able to reach the river on that side, owing to the abandonment of a portion of the Lake Shore and Michigan Southern Railroad, over which the C. and P. cars have to pass to reach their ore docks. Including two slips owned by this same railroad company, they have in all about fourteen vessel lengths. A great many changes and improvements have been made in the manner of thing the steel manufacturers desire, but it is not probable that it will come into operation, even if agreed to, before the next session of Congress." Whether this is so or not you have much better opportunities of knowing than myself, and I shall, therefore, leave the subject without further comment.

There is little novelty in cutlery. Few of the factors and merchants are doing a businesswhich commands their whole attention, and of the total, America does not contribute more than a handling the ore. The old tedious and uncer-

along the line of the 'river, so that the engine can be, with little trouble, placed in propor position to work. There are, on the C. and P. docks, ten of these engines, and with the aid of any one of them, working three hatches, the men are able to unload a thousand ton cargo in two days, while they would have been making good time to have unloaded the same cargo in ave days with horse-power only. The ore, a bucket full at the time, is wheeled back from the vessel about twenty-five feet, leaving space between the edge of the dock and the ore pile for the hoisting engine and a single railroad track. Last year the C. and P. R. R. Co. docked over 385,000 tons of ore on this one dock. The different ore companies have spaces allotted to them, proportioned, of course, to the amount they are expected to ship. The ores of the different companies, and different grades, are separated by a divison wall made of large pieces of ore. All winter long the summer's ac-cumulation of ore is loaded into cars and shipped to the furnaces. Tracks are run on each side of the ore pile, and shifted to within roach of it as it slowly recedes from before the shovel of the muscular "heaver," and upon the arrival of the first cargo from Marquette the dock is all clear for another season's shipments. But with all the conveniences and improvements, and as large as they are, the ore docks on the old river bed are already overcrowed, and Eric and Ashtabula are both making efforts to catch the surplus ore. This year considerable ore will go to both of these places, but when Cleveland's harbor of refuge is built, it will be able to dock the three million tons of ore that Marquette will then annually send us.

Iron Mining in Ireland,-During the past two years the iron ore mines in the North of Ireland have attracted a large share of public attention, and the interest manifested in the undertaking is still in the ascendant. For a length of time the workings of the various mines have been prosecuted with a large share of success, but it is not till the present time that the enterprise has shown signs of any marked success. As a national industry, iron mining will, to all appearance, become one of the most flourishing trades known to Ireland; and the opening of Irish Hill Mines, in the County Antrim, is another proof of the progress of the undertaking. It has been successful from the beginning, since which event a large quantity of ore has been brought to bank. The bed of ore, we are informed, lies in a northeasterly direction, into which three levels have been driven-the Downshire, the Vaughan and Wardaugh, the two former being driven sixty fathoms. A number of workings are at the present time being carried on in the rise and dip of these two levels, and all the ore is being excavated, excepting where pillars are left to support the roofs of the mines. Although there are several communications between the main levels, there is a main communicating tunnel, called the Marshall air-course, which not only thoroughly ventilates the drifts, but likewise all the various workings existing between them. There are three eres-the pisolitic hematite, the aluminous, and the lithomarge-the seams of which vary from one foot to twelve feet in As the main drifts progress, aircourses will, we understand, be made, communicating to the three levels, which will give abundant and thorough ventilation throughout the entire mine. Perhaps the most novel part of the working consists in the mode of blasting the ore, which has been invented by Mr. Sutherland, the manager of the mines. A wire is run along the roof of the mainways, leading from the headways to the nearest workings, and ending in a small galvanic cell. The miners charge their boring with powder in the ordinary way. A small iron wire is attached to the leading wire and introduced into the powder, the This is a splended opportunity for any one wishing hole is tamped and the ore is blown up from to engage in a safe and profitable business. Stock the working by attaching the leading wire to well selected, and has been purchased at bottom the galvanic cell. This improved method of figures. The trade is well established and has proved blasting is free from danger, and is executed in a much shorter time than by the ordinary fuse process.

Base Ball .- The employes of the store of the Hart, Bliven & Mead Mfg. Co. challenged those of Sargent & Co. to a game of Base Ball, on Saturday, the 20th instant, at Prospect Park, Brooklyn. When the game was called it ap-Co. had in the players from the manufactories at New Haven, Conn. The Hart, Bliven & Mead Mfg. Co., therefore, put in a protest against playing any but those employed by Sargent & Co., of New York. The game was, consequently, played under protest, with the following result

The Hart, Bliven & Mead Mfg. Co. have again challenged Sargent & Co., of New York, but the challenge has been declined.

MM. Troost & Hautefeuille have lately completed an important research relative to the compounds formed by hydrogen with certain metals, particularly potassium and sodium. They find that hydrogen unites definitely with both of these metals, forming compounds containg two atoms of the metal to one of hydro-Heated to 200° with hydrogen, potassium unites with it, producing a compound which is decomposed again at 900°. Sodium also unites

the hydrogen at 200°, but the resulting com
There will be sold with the above a large and valpound is completely decomposed at 400°. Both these hydrides present all the characters of amalgams; they have a metallic lustre and and Pipes of all sizes; Turning and Planing Too's show the general physical aprearance of a metal. This fact furnishes an additional proof of the metallic character of hydrogen, these compounds being quite analogous to the palladium hydrides discovered by Graham. Potassium and sodium hydrides are true alloys, so far, at least, as their physical properties are concerned.

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#### TO INVENTORS AND MANUFACTURERS

To IRON MASTERS,—The advertiser has been in the fron business for the past 30 years, having for the mast 7 years been connected with the R. I. Horse Shoe Do, of Providence, R. I., as foreman of their works, and reactionally understands all brat ches of the rolling mill unsiness. Would like to secure a position as manager of ome fron Works. Can furnish reference from said R. I. Horse Shoe Co, and others, as to ability, character, &c. Address

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Nos. 59 & 61 Wal' Street, N. Y., and for key of premises opposte thereto at Mr. Francisco's Saw Mill, Beavertown, N. J.

### Business Chance.

In consequence of the death of my partner, I offer for sale, for a short time, the Hardware business of M. W. Duvall & Co., Oxford, Butler County, Ohlo. successful through all the declines and reverses since the war. Oxford is one of the most pleasant places in the State. The store, two stories, 24x150, with cellar, will be sold or rented; also, two Dwell-eng Houses for sale. Apply to

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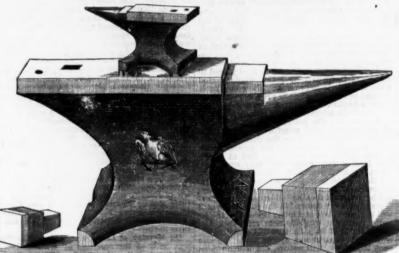
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der the face.

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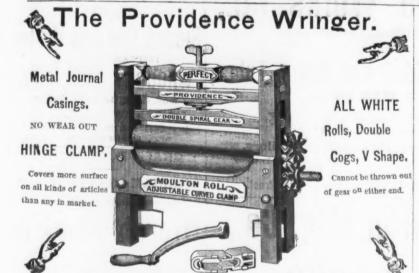
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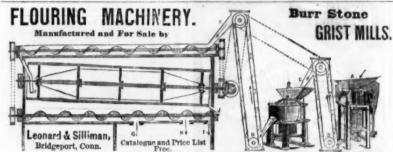
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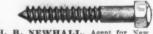




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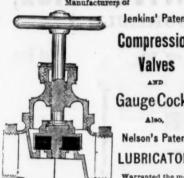


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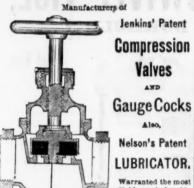
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and Index to Advertisements.

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Pavol John & Sons, 100 John, N.Y. Miller Edward & Co., 4 Warren, N.Y. Plume & Atwood Mfs. Co., 80 Chambers, N.Y.
Waterbury Brass Co. 52 Beekman N. 1 Brick Presses. Makers of
Brick Presses. Makers of Carnell Geo., 1819 Germantown Ave., Phila. Carnell F. L. & D. R., 1844 Germantown Ave., Phila. Miller Samuel P., 500 S. Fifth, Philadelphia.
Bridge Builders.  Moseley Iron Bridge and Boof Co., 5 Dey, N. Y
Butcher and Shas Kuivas, Manufacturers of, Wilson John, Shedield, England. Burr Stone Flouring and Grist Mills, Leonard & Sillman, Bidgeport, Ct.
Leonard & Sillman, Bringeport, Ct.  Butts and Hisners. Makers of R. I.  American Butt Co., Providence, R. I.  American Spiras Spring Butt Co., 27 Park Row, N. Y.  Crooke & Co., 168 Mulberry, N. Y.  Roy & Co., West Troy, N. Y.  Statley Works, 79 Chambers, N. Y.  Unton Mg. Co., 99 Chambers, N. Y.  Lindon Mg. Co., 99 Chambers, N. Y.  Lindon Mg. Co., 99 Chambers, N. Y.
American Spiral Spring But Co. 2 Fars Low, N. 1. Crooke & Co., 168 Mulberry, N. 1. Rov & Co., West Trov, N. Y.
Carriage Balts, Makers of.
Carriage Hardware, Makers of.
Smita H. D. & Co., Flantavine, Oct. Car Wheels, etc., Manufacturers of, Jackson & Woodin Mfg. Co., Berwick, Fa Taylor fram-Works, High Bridge, N. J.
Calu, Gordon & Co, 1845 Richmond, Phila Kendrick & Runkle, Trenton, N. J.
Chisels, Manufacturers of. Barton D. R., Rochester, N. T
Wyatt Thos., Al Eddy, Frovinsease, R. I. Chiarla, Manufacturers of, Barton D. R., Rochester, N. T. Buck Bros., Milloury, Mass. Clothes Wringers, Manufacturers of, Providence Tool Co., 11 Wairen, N. Y.
Coal. Minera of .
Parque A. & Co. III Blowway of Coal Hods, Manyfurdurers of Easterbrook Wm., 311 Cherry, Phila. Ohio Coal Hod Co., 437 E. Front, Ciacinasti. U. Smita, Buras & Co., 45 Clift, N. Y
Coffee and Spice Mills. Lane Brothers, Millbrook, N. Y. Enterprise Mfg. Co., Philadelphia, Pa.
Commission Merchants, English.
Compasses and Dividers, Manufacturers of Romis & Call Hardw. & Tool Co., Springfield, Mass
Cooper's Tools, etc., Dealers in. Little Chas. E., 59 Fulton N. Y. Swan & Brombacher, 33 & 34 Fulton, N. Y. Swan to Brown Pine Kilbown, Makers of
Swan & Bromoscaer, of Grands, Makers of. Corrugated Metal Co., East Berlin, Conn. Crucibles, Manufacturers of.
Corrugated Metal Co., Loss Bernellon, Control
Curry Combs, Managastarers of the Bartholomew G. W. & H. S., Bristol, Ct.,
Curlery, Importers of, Boker Hermann & Co., 101 Duane, N. Y
Carlyle Wm. A., 30 Cordanas, 31 Dickinson Henry, 65 and 68 Reage, N. Y. Picher Jos. S., 411 Commerce, Phila. Fisher Jos. S., 411 Commerce, Phila.
Friedman & Littlerium, King H. & J. W. 80 Chambers, N. I Peace Chas. Jr., 83 Chambers, N. Y Peace Chas. S. Chambers, N. Y
Battology W. P. & Co., Troy, N. Y.  Cutlery, Importers of. Boker Hermann & Co., 601 Dnane, N. Y. Carlyle Wm. A., 50 Cortlands, N. Y. Dickinson Henry, 66 and 68 Rease, N. Y. Fisher Jos. S., 411 Commerce, Phila. Friedman & Lanterjung, 14 Warren, N. Y. King H. & J. W., 80 Chambers, N. Y. Peters Bros., 58 Chambers, N. Y. Peters Bros., 58 Chambers, N. Y. Peters Bros., 58 Chambers, N. Y. Tillmes A. & Co., 511 Commerce, Phila. Ward Asine, 101 Duane, N. Y. Vilson Hawksworth, Ellison & Co., 50 John, N. Y. Taylor TLomas 43 Chambers, N. Y.  Castery, Manufacturers of.
Taylor Thomas 43 Chambers N. Y
Taylor T.Lomas 43-Chamoers  ('atlery, Mannfacturers of: American Kuife Co., Thomaston, Conn. Burklushaw Aaron, Peaperell, Mass Landers, Frary & Clark, 256 Broadway, N. Y. Miller Bros. Cutlery Co., W. Meriden, Conn. New York Knife Co., Waiden, N. Y. Woods Cutlery Co., Antrin. N. H.
New York Knife Co., Waiden, N. Y. Woods Cuttery Co., Antrim. N. H.
Woods Cutery Co., Askers of. Van Wart & McCoy, 43 Chaulbers, N. Y.  Door and Gate Springs. The Challenge Door Spring Co., 49 Ann. N. Y. Van Wagner & Williams, 21 Park Row.
Van Wagner & Williams, Zi Park Row.  Dredging, and Makers of Dredging Machines. Am. Dredging Co., 2148. Delaware ave., Phila
Am. Dredging Co., 488. Delaware we., Falla.  Drill Chucks, Manufacturers of.  Hulf F. A. & Co., Danbury, Conn.  Lambertville Iron Works, Lambertville, N. J.
Lambertville Iron Works, Lambertville, N. J.  Drilling Machines. Makers of.  Gill George W. 27 North 5th. Philadelphia.
Drilling Machines. Makers of. Gill George W., 27 North 5th, Philadelphia. Miller Falls Co., 78 Beekman, N. Y. Thorne & DeHaven, Philadelphia.
Prop Forgings Phila Forging Works, Kensington, Philadelphia Edge Tools, Makers of Chambers, N. V.
Edge Tools. Mukers of. Bradley O. W. 51 Chambers, N. T. Elevators. Mukers of. Howard Goo. C., 17 - 19th, Phila. One Bros. C. Co., 31s Broadway, N. Y.
Cus Bros. & Co., 35 Brownway, N. Y.  Emerv. The Union Stone Co., 16 Exchange, Boston
Emery Cloth. The Union Stone Co., 16 Exchange, Boston
Finery Wheels, Makera of. Tasite Company, Strondsburg, Pa. The Union Stone Co., 15 Exchange, Boston
Eugineers, Machinists, etc. Henshall James, 1896 Beach, Phila. James Moore, cor. 19th and Buttonwood, Phila
Engines. Steam Makers of. Haskin: Machine Co., Fitchburg, Mass. New York Steam Engine Co. 98 Chambers, N. Y
Engines. Steam. Makers of. Haskin: Machine Co., Fitchburg, Mass. New York Steam Engine Cc. 98 Chambers. N. Y. Shapley & Wells, Binghamton, S. Y. Tanner Wm. E. & Co., Richmond, Va. Woodruff Iron Works. Hartford, Conn.
Ingravers. Wood. Patterson Jas. S., 21 Spruce. N. Y Faucets. Self-Measuring, Makers of.
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Fisher Joseph S., 411 Commerce, Prills.
Moss F. W., 80 Joha, N. Y.
Moss F. W., 80 John, N. Y. Sanderson Bros. & Co., 16 Cliff, N. Y. Spear & Jackson, 98 Chambers, N. Y. Files, Man Gacturers of
Enterorise Mfg. Co., of Pa., Phila, and N. Y. Files, Importers of John, N. Y. Curr J. & Rilley 82 John, N. Y. Phockinson Henry, 66 and 68 Reade, M. Y. Fisher Joseph S., ill Commerce, Ppils. Frasse Peter A. & Oo. & Fallon, N. Y. Moss F. W. N. B. John, N. T. C. M. Spoar & Jackson & Chambers, N. Y. Spoar & Jackson & Chambers, N. Y. Barnett G. & H., 41 and 48 Richmond, Phila. McCaffrey & Bro., 1783 and 1734 N. & M., Phila. Nicholson File Co., Providence, R., I. Waeler, Clemson C. O., Middletowe, N. Y. Walsh, Coulter & Flaglet, 83 Chambers, N. Y.

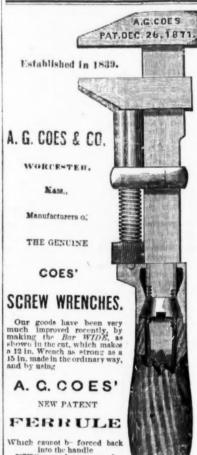
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Fire Brick, Makers vy.  Brooklyn City Retort and Fire Brick Works, Van
Dyke, St., Brooklyn, N. Y
Hall A. & Sons, Buffalo, N. Y
Newkumet Philip, 28d and Vine, Phila
Salamander Works of Woodbridge, N. J., foot of           Bethune St., N. Y
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Fluting Machines.  Meyers Mfg. Co., 200 Centre, N. Y
Turner W. D. & Co., Geneva, Illa
Bacder Adamson & Co., 780 Market, Phila30 Galvanized Iron.
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Giant Nail Extractor.  Maitby, Curtiss & Co., Waterbury, Ct
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Shive Governor Co., Bethlehem, Pa
Shepard Sidney & Co., Buffaio, N. Y
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Lafin & Rand Powder Co 21 Park Row, N. Y
Emmet Hammer Co., Brooklyn, E. D., N. Y
Tiebout W. & J., 290 Pearl, N. Y
Fernaig & Sise, 100 Chambers, N. V.
Green R. M. 100 Chambers, N. Y         21           Graham & Haines, & Chambers, N. Y         30           Walbringe Geo, B. 99 Chambers, N. Y         27           Walsh, Coulter & Flagler, 83 Chambers, N. Y         36
Hardware Dealers, Linform, Kelloge & Co., San Francisco, Cal
Hardware Dealers. Linforta, Kellog & Co., San Francisco, Cal. 20 Liovd. Supplee & Walton. 625 Market. Phila. 21 Quackenbush, Townsend & Co., 56 Reade, N. Y. 25 Shepara Sidney & Co., Buffalo, N. Y. 6 Turner, Seymour & Judds. 64 Duane, N. Y. 6
Bardware Imperiers. Beam & Murray, & Chambers, N. Y. 28 Boker Hermann & Co., 101 Duanc, N. Y. 29 Field Alfred & Co. 47 John, N. Y. 29 Field Alfred & Co. 47 John, N. Y. 29 Field Alfred & Co. 47 John, N. Y. 10 Van Wart & McCoy, & Chambers, N. Y. 10 Van Wart & McCoy, & Chambers, N. Y. 11 Turnor R. A., 57 Chambers, N. Y. 20 Windmuller Louis & Roelker, 20 Reade, N. Y. 20
Boker Hermann & Co., 101 Duane, N. Y. 28 Field Alfred & Co. 47 John, N. Y. 29 King H. & J. W., 30 Chambers, N. Y. 10
Van Wart & McCoy, 43 Chambers, N. Y. 10 Turnor R. A., 37 Chambers, N. Y. 11
Hardware Manufacturers, 20 Reade, N. Y
Enterprise Mfg. Co., Phila.  Hart, Biltven & Mead Mfg. Co., 243 Pearl, N. Y., 20 Jacobus & Nimick Mfg. Co., 96 Chambers, N. Y., 20
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Lane, Gale & Co., Troy, N., Y.  Many & Marwhall, 88 Warren, N. Y.  Middletown Tool Co., & Chambers, N. Y.  Middletown Tool Co., & Chambers, N. Y.  Miller's Falls Mig. Co., 78 Beckman, N. Y.  Pratt & Co., Buffalo, N. Y.  Providence Tool Co., 11 Warren, N. Y.  Sonweitzer Mig. Co., 51 Reade, N. Y.  Shattuck W. F. & Co., 13 Chambers, N. Y.  Shattuck W. F. & Co., 13 Chambers, N. Y.  Shattuck W. F. & Co., 13 Chambers, N. Y.  Shattuck W. F. & Co., 13 Chambers, N. Y.  Shattuck W. F. & Co., 14 Chambers, N. Y.  Williams, White & Churchill, 28 Warren, N. Y.  Williams, White & Churchill, 28 Warren, N. Y.  Williams, White & Churchill, 28 Warren, N. Y.  Landware Naccallation.
Providence Tool Co., 11 Warren, N. Y. Schweitzer Mfg. Co., 57 Reade, N. Y. Shattuck W. F. & Co., 13 Chambers, N. V.
Stanley Works, 79 Chambers, N. Y. 29 The Wethersdeld Novelty Co., Wethersdeld, Ct., 31 Turner, Seymour & India, 64 Image
Union Mfg. Co., 99 Chambers, N. Y Williams, White & Churchill, 73 Warren, N. Y. 21 Wilson Mfg. Co., 37 Chambers, N. Y. 21
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Horse Hay Forks and Fixtures, Makers of. McDonald & Gordon, Rushford, N. Y. Nellis A. J. & Co., Pittsburgh, Pa
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Putnam S. S. & Co., Neponset, Mass.
Horse Shoes, Makers of, Burden Iron Works, Troy, N. Y.  Hydraulic Jacks, Dudgeon Richard, 24 Columbia, N. Y.  24
Ice Cream Freezers. Gooth Chas., 42 Market Phila
Insurance. Beiler. Hartford Steam Boiler and Inspection Co.
Insurance, Fire, Amazon Insurance Co., Cincinnsti, O
Iron Brokers   4
Read & Dickey, Cleveland, O
Iron, Corrugated, Manufacturers of, Corrugated Metal Co. East Berlin, Conn. Mosely Iron Bridge and Roof Co. 5 Dey, N. Y. 4
Iron. Charcoal, Warm or Cold Blass, Quincy John W., 98 William, N. Y.  Iron Commission Merchants,
Iron Commission Merchauts, Althouse & Umberser, 341 Walnut, Philadelphia fi Blakiston & Cox, 333 Walnut, Phila Hand Jas. C. & Co., 514 and 516 Market, Phila Hand Jas. C. & Co., 514 and 516 Market, Phila Malin Bros., 238 Dock, Phila.
Mailn Bros. 28 Dock. Phila
Iron Dealers, Abeel Brothers, 120 South, N. Y.
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Coddington T. B. & Co., 25 CHiff, N. Y.  Conklin & Huerstel, 29 Market Slip, N. Y.  Fuller, Lord & Co., 159 Green wich, N. Y.
Fuller, Dana & Fitz, 110 North. Boston. Gardner Wm., 575 Grand. N. Y. Harrison & Gilloon. 588 to 582 Water, N. Y.
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Packard, Goff & Co., Youngstown, O. Pettee & Mann, 28 and 229 South, N. Y. Pfefferle John F., 531 Water, N. Y.
Pierson & Co., 24 Broadway, N. Y. Quincy John W., 96 Wullam, N. Y. Blehards D. W. & Co., 92 Mangin St., N. Y.
Smith Gam'l G. & Co., 342 Pearl, N. Y. Warner A. B. & Sons, 28 and 29 West, N. Y. Williamson James & Co., 69 Wall, N. Y.
Whitney Alfred R., 88 Hudson N. Y
Burden Iron Works, Troy, N. Y Cleveland Rolling Mill Co., Cleveland, O., Coffin Win, E. & Co., 8 Oliver, Boston.
Boston Rolling Mills, 17 Batterymarch, Boston. 4 Everson, Graff & Macrum. Pittsburgh, Pa. 4 Fulton S, & Co., 242 S. Third. Philip.
Girard Rolling Mill Co., Girard, O., Leonard John, 450 & 451 West st., N. Y., Milwankee Fron Co., Milwankee, Wis.
New Haven Reliting Mill Co., New Haven, Ct. Old Dominion Iron & Nail Works Co., Richmond, Va. & Oxford Iron Co., 81 Washington, V.
Whitner Alfred R., 88 Hudson N. Y.    Pren. Monifecturers of.
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Lace Leather, Minuracturers of.
Lanterns, Manifacturers of. Dietz R. E., Tabular) 54 and 56 Fulton, N. V. 36 Howard & Morse, 84 Fulton, N. Y. 2 Shepard Sidney & Co., Buffalo, N. Y. 6 Lawn Mowers, Manifacturers of. 6 Chadborn & Coldwell Mfs. Co., Newburgh, N. V. 12
Lawn Mowers. Manufacturers of Chadborn & Coldwen Mig. Co., Newburgh, N. V 12
Colwell Lead Co., 213 Centre, N. Y
Robannan Wilson, Broadway and Kosmith Brooklyn
Branford Lock Works. Branford, Conn. 18. Nowleh Lock Co., Norwich, Conn. 18. Norwich Lock Co., Norwich, Conn. 19. Romer & Co., Newsky, N. J. 22. Trenton Lock Co., 48 Warren, N. Y. 24. Yale Lock Mg. Co., 268 Broadway, N. Y. 30. Yale Lock Mg. Co., 268 Broadway, N. Y. 30. No. 19.
Romer & Co., Newark, N. J. Trenton Lock Co., 48 Warren, N. Y. Vale Lock Mr. Co., 298 Broadway, N. V. 8

Yale Lock Mig. Co., 28 Broadway, N. Y.
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Chapin Machine Co., New Hartford, Con
Goodspeed & Wyman. Winchendon, Ma
Place George & Co., 121 Chambers, N. Y.
Pratt & Whitney Co., Hartford, Conn.
Sellers Wm. & Co., 160 Hamilton, Phils.
Watson Andrew, 387 Dickinson, Phils.
Watson Thomas. 2106 Wood, Phils.
Wood Thomas. 2106 Wood, Phils.

Machinery Oils. Ney Wm. F., New Bedford, Mass.

HE IRON AG	E
Machine Screws, Makers of. American Screw Co., Providence, R. I	18
Demarest, Jope & Co., Brooklyn, E. D	85
Churchill Charles & Co., 28 Wilson St., Finsbur London, England.	у. 9
Menauring Tapes. Eddy Geo. & Co., 33 Cissson Asc., Brooklyn, N. Y Meat Cutters. Makers of, Whittouror D. H. Worcester, Mass	
Wittelliore D. H. Worcester, Massa Metal Dealers and Brokers. Coddigton F is & Co., 25 and 27 Cliff, N. Y. Cort N. L. & Co., 25 & 224 water, N. Y. Crane U. O., 384, "hn. N. Y. Gregg H. L. Co., 158 Wainut, Philis. Holines & Lissberger, 25, 6 837 Pearl, N. Y. Phielps, Dodge & Co., Cliff, bet, John & Fulton, N. Quincy J. W., 98 William, N. Y. Thomson & Co., 213 and 215 A. A. Water, N. Y. Van Wart & McCoy, 43 Chambers, N. Y. Metallurgists.	2
Pholps, Dodge & Co., Cliff, ber. John & Fulton, N. Quincy J. W., 98 William, N. Y	Y. 9
Britton J. Biodgett. 239 Wainut. Phila. Drown Thomas M. 1123 Girard. Phila. Maynard & Van Rensedaer. 24 Cliff, N. Y. School of Mines, E. 49th, N. Y.	5
Mining Spikes Roseberry Geo. D., Pottsville, Pa  Molders' Tools. Curter H. & Sops. 230 Part. N. V.	4
National Fine Art Foundry, 218 E. 25th	80
Nickel Platers. New York Nickel Plating Co., 135 West 25th, N. Y. Norway Shapes. Rollers of. Rowland Wm. & Harvey, 948 Beach, Phila.	36
Note Broker, Gallaudet P. W., 3 and 5 Wall, N. Y. Nuis. Bolts, etc., Makers/o American Bolt Co., 210 Lawrence, Lowell, Mass Arms. Bell & Co., Youngstown, O.	2
Gallaudet P. W., 3 and 5 Wall, N. Y.  Nuis. Bell. Set., Makerajö  American Boll Co., 240 Lawrence, Lowell, Mass.,  Arms. Bell & Co., Youngstown, O.  Carbonter David, 462 Water N. Y.  Clark Bros. & Co., Millulale, Conn.  Fuller Lord & Co., Boonton, N. J.  Haskell W. H. & Co., Pawtucket, R. I.,  Roseberry G. Works, H. Chambers, N. Y.  Roseberry G. Works, H. Chambers, N. Y.  Russell, Birdsall & Ward, Port Chester, N. Y.  Plumo, Burdict & Barnard, Buffalo, N. Y.  Sternbergh J. H. Reading, Pa.  Union Nut Co., 78 Beckman, N. Y.  Oliters. Makers of,	12
Roseberry Geo. D., Pottaville, Pa. Russell, Birdsall & Ward, Port Chester, N. Y. Piumo, Burdict & Barnard, Roffalo, N. Y. Sternbergh J. H., Reading, Pa. Union Nut Co., 28 Beekman, W. W.	
Austin J. & Co., 168 Fulton, N. Y. White J. H., Newark, N. J.	21
Old Itou, otc. Gregg H. L. & Co., 108 Walnut, Philadelphia Ore frushers. Blake Crusher Co., New Haven, Ct	84
Paints. Rocky Mountain Vermillion Paint Co., Frov., R.   Paints and Oils. Dealers m. Devoc F. W. & Co., Hi Fulton. N. Y. Patent Solicitors.	
Patent Solicitors. Howson & Son, Phila, and Washington, D. C. Whitey J. A., 128 Broanway, N. T. Picture Nails, etc., Manufacturers of. Illchards T. C. & Co., 17 Murray, N. Y.	3
Pipe Felting Co. 73 Beekman, N. Y.  Pipes, Firings, etc., Makers Qf. Eston & Cole, 35 John, N. Y.  MeNab & Harlin Mr. Co., 56 John, N. Y.	23
Nelson, Finkel & Co. 439 E. 10th st., N. Y. Pancoast & Maule 227 Pear, Phila.	22
Pipe, Water and Gas, Makers of, Brick R. A. & Co., 112 Leonard, N. Y. Brick R. A. & Co., 112 Leonard, N. Y. Graff William & Co., Pittsburgh, Pa. MeNeal John & Sons, Burlington, N. J. Morris, Tasker & Co., 15 Gold, N. Y. National Tube Works Co., 75 William, N. Y. Starr Jesse W. & Sons, Camden, N. J. Warren Foundry & Mach. Co., Phillipsburg, N. J. Wood R. D. & Co., 172 Broadway, N. Y. Piston Packing. Cambeld John & Co., 191 Federal	23
warren feundry & Soin, Landen, N.J., Warren Foundry & Mach. Co., Phillipsburg, N.J., Wood k. D. & Co., R? Broadway, N. Y. Piston Packing. Cambeld John & Co., 131 Fairmount Ave., Phila., James Glanding, 115 Queen, Philanelphia.	22
James Glandfog, 115 (ucen, Philacelphia Plane Irona, Manufert, and H. Chapin'a Son, Pine Me-low, Conn Middletown Tool Co., Middletown, Conn. Sandusky Tool Co., Saudusky, O.	8
H. Chapin's Son, Pine Meadow, Conn. Greenfield Tool Co., Greenfield, Mass	6
Stanley Rule & Level Co., & Champers, N. T.  Plumbargo Lubricator, N. Y. Black Lead Works, 172 Forsyth, N. Y.  Plumbers' Materials, Manafacturers of, Carr Wm. S. & Co., 162 Centre, N. Y.	86
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Manning H S. & Co., III Liberty, N. Y.	23
Presser. Paver M kerati. Am. Saw Co., Trenton, N. J. Peck Milo & Co., New Haven, Ct. Peck Milo & Co., New Haven, Ct. Persange Blowers Wikers of. Sturtevant B. F., 12 Sudbury, Boston. Pumps, Makers of. Burlingham & Purdy, 163 Chambers St. Douglas W. & B., Middletown, Conn. Runisey & Co., Senera Falls, N. Y. Union MR. Co., 90 Chambers, N. Y. Valley Mcb. Co., Earthampton, Mass. Personnel Pre.	85
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Rails, Importer of. Congreye Chas. & Sec., 104 and 106 John, N. Y. Smith Gilead A. & Co., & Broadway, N. Y. Rails, Iron or Steet, Makers of. Atkins Bros. Pottsville, Fa. Cambria Iron Co., Johnstown, Pa. Cleveland Rolling Mil Co., Cleveland, O. Griswold John A. & Co., Troy, N. Y. Milwaukee Iron Co., Milwaukee, Wis. Springield Iron Co., Springield, Ills. Razor Straps. Milers of. B. F. Bagger, Charlestown, Mass.	6
Griswold John A. & Co., Troy, N. Y. Milwaukee Iron Co., Milwaukee, Wis. Springdeld Iron Co., Springdeld, Ills. Razor Straps., Microsof., B. F. Badger, Charlestown, Mass.	6
B. F. Isalger, Charlestown, Mass.  Refrigerators. Lesley Alex. M., 224 W. 23d, N. Y.  Rivers. Old Colony Rivet Works, 116 Chambers, N. Y.  Tumues Peter, 281 North 6th, Brooklyn, E. D.	12
Rivers, Old Colony Rivet Works, 116 Chambers, N. Y. Timmes Peter, 281 North 6th, Brooklyn, E. D. Rallius, Mill dischiners, etc., Manufacturet Moore James, Cor. 16th and Buttonwood, Phila. Ralls, Chilled and Sand, Makers of Garrison A. & Co. Piteburgh, Pa. H. Chapin's Son, Pine Meadow, Ct. Stauley Rule and Level Co., 35 Chambers St.—.	35
Stanley Rule and Level Co., 35 Chambers St	8
Atkins E. C. & Co., Indianapolis, Ind. American Saw Co., Trenton, N., J., Idoynton E. M., 80 Beckman, N. Y. Filint J., Ruchester, N. Y. Disston Henry & Sons, Phila. McNette Wm., 38 Chem. Phil.	10
Stauley Rule and Level Co., 35 Chambers St.— Stauley Rule Rule Rule Rule Rule Rule Rule Rule	10
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[Continued from page 1.]

against bosses or tappets screwed on the valve stems in a way which will be readily understood, as it presents no novelties.

Three balanced throttle valves and chamber will be fitted, one on each engine, the area of the throttles being equal to that of the admission valves, and one fitted on a stand for the admission of the steam to either or both engines. The area of the last mentioned throttle will be one-third more than the throttles before described. Each of three throttles will be provided with large heavy wheels of a neat pattern, with handles, and nickel plated.

The extreme length of bed plate is not less than 89 ft. 4 in.-probably the largest bed plate in the world, made in three sections. The width at the base is 9 ft. 4 in., and extreme width at the base of the supporting columns of the pump shaft is 11 ft. The width of upper flange of bed plate is 16 in., increased to 24 in. at slides, 221/4 in. at the cylinder, 2 ft. 8 in. at base of columns, and 2 ft. 4 in. wide for base of pillar blocks for main shaft, and 3 in. think when planed; the lower web is 18 in. wide, and 21/2 in thick, with two sides 281/2 in. deep, and 11/4 in. thick, forming a rectilineal box. Ribs 11/2 in thick are cast at intervals of not more than 5 ft., and ribs 3 in, thick are east at right angles under the base of the columns of pump shaft and pillow block of main shaft. Six projections, 4 in. deep, 3 in. thick, and 18 in. long, are cast on the under side of the bed plate to prevent lateral motion. Brackets to admit of keying the cylinder, pillow blocks of main shaft, and columns for pump shaft, are east on the upper side of the bed plate. Chambers are cast and bored out for the reception of the diagonal wrought iron braces to support the upper end of the pump shaft columns and pillow blocks; the three sections of the bed plate are secured to gether by bolts and links, shrunk on the upper and lower sides of the bed plate. Brackets to support the projections cast on the bed plate to bolt the sides are cast at proper intervals.

The main slides are 15 ft. 10 in. long, 41/6 in. thick, by 8 in. face of slides. The web of the slide which is bolted to the bed plate is 3 in, thick, the slides are made of close grained and hard, strong iron, and secured to the bed plate with ten bolts of 1% in. diameter.

The crossbeads are made of wrought iron The boss in which the piston rod is fitted and keyed is 18 in. diameter by 24 m. long, and bored with a taper of % in. to the foot. The keys, both for cross and piston heads, are made of good steel, 2 m. thick by 8 in. wide; the jaws 5 ft. 4 in. in width, 18 in. long by 10 in. wide, and finished 41/2 in. thick, with 8 in. between the jaws. The slide or jaw brasses are of composition metal, eight parts new copper to one of new tin, 22 in. long by 8 in. wide, and 1% in, thick, fit ed with keys and set screws The trunions between the jaws and connecting rods are 12 in. in diameter. The wrists for the connecting rod are 10 in. diameter by 10 in.

The connecting rods are 18 ft. 4 in. from cen ter to center of wrist brasses, 9 in. diameter for 10 in. at middle of the rods; then reduced to 8 in. diameter, and tapering to 7 in. at each end of the rods. The straps for the rods are 36 in. long outside, 8 in. wide, 4 in. thick at the key and gibs, and 3 in. thick for the remainder, with bolts through the straps. The end of the rods on which the straps are fitted are 8 in. thick and 11 in. wide. The strap boxes are made of composition metal, bored 10 in. diameter by 10 in. long, and leaving 21/4 in. metal both forward and aft of the wrists, and % in, thick both above and below the wrists; the keys and gibs are 8 in. wide by 1% in. thick, with bolts through the rods and straps.

The main connecting rods are 24 ft. 3 in. from center to center of wrist boxes; they are straight for 1 ft. at the middle, and 12 in. diameter, and reduced from 1 ft. to 11 in. diameter, and tapering to 9½ in. diameter at each end. The straps are 40 in. long outside, 11 in. wide, and 131/2 in. width between straps for the brasses. The straps are 5% in, thick, to allow for keys and gibs, and 4 in. thick for the remunder of the strap; the keys and gibs are 2% in. thick and 11 in, wide, with bolts through the connecting rod and straps. The boxes for the connecting rod are made of composition metal, eight new copper to one of tin, bored to 11 in. diameter and 15 in. long, for the length of the The two boxes for the rod measure 23 in. lengthwise, by 131/4 in. in width

Fig. 2 is a plan of the machinery. The flywheel shaft is made of the best wrought iron, and is 24 ft. 6 in. long, and 28 in. diameter for ft. long where the fly-wheel is fitted and keyed, then tapering to 26 in. diameter; the collars are 3 in. thick, and 5 in. wide; the journals to be 32 in. long, and 26 in. diameter. The end of the shaft on which the crank is fi ted will be 24 in. long, and 26 in. diameter The cranks are of wrought iron, 7 ft. from center of shaft to eanter of pin, the boss which is fitted on the shaft being 24 in. wide, and 52 in. duameter, the toss of the crank pin is 28 in. diameter by 20 in. thick; the web of cranks is 34 in. wide at the boss of shaft, by 18 in. thick. and at the boss of wrist pin is 18 in, wide by 12 in thick. The cranks are bored and shrunk on to the shaft at right angles, and secured by two keys placed 120° apart. The crank pins are fitted in from the back of the crank, and with a taper of % in. to the foot. The smallest diameter is 13 in., and they are keyed in the eranks. The pins are turned down to 11 in. diameter by 15 in. long, with collars 1 in, thick. The pillow blocks of the main shaft are 32 in wide by 26 in. diameter, and fitted with side and bestom brasses of composition metal. The brasess are provided with keys to set up the same. The cap and pillow blocks are secured to the bed plate with eight bol's, 2 and 11/2 in. in diameter. The Ly-wheel is one of the largest ever constructed, the rim alone weighing about 45 tons, being 32 ft. in diameter, with ten arms, one arm and one segment

being cast together. The rim is 20 in. deep, and 16 in. width on the face, giving a cross section of 390 square inches. The cross section of 320 square incres. The center is cast in one piece 8 ft. diameter; the boss of the center is 40 in. diameter and 32 in. through the eye. Two wrought fron bands, 4 in. square, are turned and shrunk, one on each side of the boss. Each of the ten arms is turned and square, are turned and shrunk, one on each side of the boss. Each of the ten arms is turned and fitted into chambers or recesses, bored into the center for their reception, and then secured with keys 2 in. thick and 8 in. wide. The segments required to make the wheel are planed on the ends to fit together, and secured by three wrought iron links, one on each side of the rim, and one on the inside of the rim; the links are made of 3 in. square ron, 7 in. wide, and 18 in. long inside. There are two columns for each engine, 6 ft. 10 in. high; 26 in. diameter at the base, and tapering to 22 in. diameter at the upper end of the columns. The bottom fiange is 4 ft. long, 32 in. wide and 4 in. thick. Two braces, or brackets, 4 in. thick, are cast on each side of the columns; the upper flange is 28 in. diameter and 4 in. thick, urned and finished. The shell of column is 4 in. thick, and finished with neat moldings. The pillow blocks for the pump shaft are made as shown by the engravings, the bearings being 26 in. long and 16 in. pump shaft are made as shown by the engrav-ings, the bearings being 28 in. long and 16 in. diameter, with projections cust on, and bored out for the reception of the wrought from diag-onal braces. The side and bottom brasses are made of composition metal, fitted with keys similar to the pillow block of fly-wheel shaft al-ready described. The wrought iron braces to steady the column are 7 in. in diameter, neatly turned and finished, and fitted and keyed to the bed plate of the engine, and pillow blocks of the ready described. The wrought from braces to steady the column are 7 in. In diameter, neatly turned and finished, and fitted and keyed to the bed plate of the engine, and pillow blocks of the pump shaft, as shown in engravings. The pump shaft is of the best quality of wrought iron, 10 ft. 6 in. long, and finished 18 in. diameter, the journals being 16 in. diameter, and 26 in. long, with collars 1 in. larger than the journals, and 1 and 1½ in. longer on each end of the sbatt. The quadrants, which work instead of the ordinary beam, will be made as shown in the engravings. Each is 6 in. thick, exclusive of the moldings, and 15 in. wide, with braces connecting the center boss to the outer web 10 in. wide, and 6 in. thick, exclusive of the moldings. The center boss is 16 in. through the eye and 3 ft. 4 in. diameter, with wrought iron rings 2 in. square, turned and shrunk on each side of boss. The bosses for the plunger wrist pins are 18 in. diameter and 12 in. thick. The bosses for the main wrist are 24 in. diameter, and 14. in. thick. The wrist pins for the pump plunger are 7 in. in diameter, and 9 in. long. exclusive of collars. Each pair of wrist pins is turned on the ends of the shaft or attecther 3 ft. 4 in. long, and 9 in. diameter, said stretcher connecting the two quadrants together; the center of the plunger wrists, when the engine is at half stroke, is 6 ft. 6 in. above tha center of the pump shaft, 16 ft. 4. in. from center to center of plunger wrists on horizontal line, and 10. ft. 5 in. from center of shaft. The main wrist pin is connected to the two quadrants, or keyed, and is 11 in. m diameter by 15 in long, and for the two connecting rods is 10 in. diameter by 10 in. long, the center of wrists to be 10 ft. 5 in. in a perpendicular line below the center of the pump shaft. The pump connecting rods are of wrought iron, and 34 ft. from center to center of the pump shaft. The pump connecting rods are of wrought iron, and 34 ft. from center to center of the pump shaft. The pump connecting dos are of wrought center of the pump state. The pump center to center to force to the middle, then reduced to 7½ in., and tapering to 6½ in. at each end. The straps are 32 in. long, 8 in. wide, 9 in. between jaws for boxes, and 3½ in. thick at gibs and keys, and 2½ in. thick for the remainder of the strap. The keys and gibs are 1½ in. thick, with bolts of equal thickness of the keys, passing through the straps; the brass boxes are made of composition metal same as that previously described. Two wrought from rods of 2 in. diameter are secured at each end of the connecting rods, and set out at the middle by stretchers to stiffen the connecting rods, as shown in the engravings. The air chambers are 34 ft. 4 in. bigh, and in three sections, the upper section being 8 ft. 4 in. long, the middle section, on which the pump sildes are fitted, being 14 ft., and the lower section, which rest on the valve chamber, and to which the pumping main is bolted, being 12 ft. long, 70 in. interior diameter, 3½ in. thick, the flanges being 4 in. thick and 4 in. wide, supported and braced with brackets, as shown in the engravings. The joints are made by turning a recess of 1½ in. wide and 3-16 in. deep in the lower flange, and a corresponding tongue or projection is turned on the upper flange, to correspond with the recess, less 1-32 in. in depth. A strip of pure sheet rubber is laid in the recess, when the tongue is dropped into the recess of the engine. Brackets are cast on the middle section, to which the pump sildes are fitted and bolted. The lower end of the lower section has a nozzle or opening of 40 in. diameter, with a flange 4 in. thick, planed off, and 4 in. wide, to which the pumping main will be bolted; on the opposite side a manhole and cap are fitted, the cap being 2½ in. thick, and 8 in. face. The flange or web 61 the sides, which is bolted to the brackets on the air chamber, are 8 in. wide and 3 in. thick, in thick, with a flatge 8 in. wide projecting from the bottom of the chamber, tapering to 3 in. thick. Braces 4 in. thick, and 8 in. wide support the chamber and connect the lower flange with the side. The several miside partitions are 4 in. thick; four manholes, with the flange with the side. The several inside partitions are 4 in. thick; four manholes, with the necessary caps, swing on binges; the caps are 2½ in. thick, for the purpose of admitting to the valves. All the joints for the caps and flanges are turned or planed. Eight 3 in. bolts are to be fitted crosswise in the chamber, and so as not to interfere with the valve or plunger, to strengthen the chamber. The pump valves and seats, eight for suction, and eight for discharging. They are of eight parts new copper and one of new tin. Each of the valves is 20 in. diameter, and with six wings, and curved. The valves seats are 10 in. deep from the upper to the lower side, 20 in. interior diameter, and 1½ in. thick, with the flange 1½ in. thick, and 2½ in. wide. The upper side of the flange is 2 in. below the valve bearing; the joints of the valve seats are made by turning the lower side of flange on valve seat and chamber on which it rests, and placing pure sheet gum between the flange and chamber, and bolting the seat to the chamber with infecental boils 1½ in. in diameter. Springs for pump valves: Each of the sixteen valves is provided with a spring made of eight laternake washers and ourse gum cylinchamber, with lifteen stud bolts 1½ in. in diameter. Springs for pump valves: Each of the sixteen valves is provised with a spring made of eight alternate washers and pure gun cylinders, working on a rod 1½ in. in diameter, the washers working freely on said rod, and having a flange or edge to secure the gum cylinders in their places; the gum cylinders to be 4½ in. in diameter, and 4½ in. long. The springs are connected with the valves and chamber with rods 1½ in. in diameter, and cross bars. The

rods 1½ in. in diameter, and cross bats. The pump barrels are 11 ft. 4 m. long, 42 m. internal alameter, and 3 m. thick; the upper flange for the stuffing box is finished 3 m. thick and 3 m.

A ring of composition metal, same as described heretofore, 3 in. thick, is made to fit the stufing box, to keep the plunger in place, and prevent the packing working into the pump harrel. The pump all rds when screwed down enter the stuffing box 3 in.; the flange of the rland is 2 in. thick and the same diameter as the flange of the pump barrel. The inside of the gland is lined with composition metal 7-16 in. thick; and the upper side of the gland forms a cup of sufficient capacity to hold five gallons of water. The gland is secured to the pump barrel with twelve stud holts 4½ in. in diameter. The pump plungers are 13 ft. 6 in. long, 40 in. diameter, and 4 in. thick. The flange on the upper end is 4 in. thick. The flange on the upper end is 4 in. thick and 4 in. wide, and recessed into the counterweight, and secured to it with twenty bolts 1½ in. diameter. The counterweights are 5 ft. wide and 5 ft. 4 in. across, 8 in. thick, and 14 ft. long. Two wrist pins of the same size as the pump wrist pins already described for the quadrant are fitted and keyed into the lower end of the counterweight to couple the connecting rods. The jaws for the slides are fitted and holted as shown in the engraving; the brass for the slides is made of composition metal, as already described, and with bearings of 8 in. face, and 22 in. long, and fitted with keys and gibs. The condensers will be either surface or jet condensers, as may be determined hereafter, and will be set in the pump well in such a manner that the water, as it comes in through the inlet pipes from the river, shall pass through or around the condenser previous to being pumped to the reservoir. Two small engues will be furnished, one for each large engine, to work the feed water pumps to exhaust the vspor and air from the condensers—said pumps and engines to be neat and substantial in their construction, and of sufficient strength and canacity to perform the duty relarge engine, to work the feed water pumps to supply the boilers, and vapor or air pumps to exhaust the vapor and air from the condensers—said pumps and engines to be neat and substantial in their construction, and of sufficient strength and capacity to perform the duty required of them. Twenty-eight boits, 3 in. diameter and 6 ft. long, secure the bed plate to the foundations; and eight boits, 2½ in. diameter and 6 ft. long, secure the pillow blocks and caps to the bed plate; each of the boits is provided with a flange or washer 18 in. square, 3½ in. thick at the center where the bolts pass through, and tapering to 2 in. at the outer edge. A neat and substantial gallery will be erected around the quadrants of each engine, 14 ft. above the floor of the engine house, and 3 ft. wide; the floor being made of either wood or iron, as may be determined hereafter, and supported on neatly constructed fron columns, with a polished brass railing, 2 in. diameter, supported with polished wrought iron posts made fast to the floor of gallery with polished brass flanges or brackets, and to the railing with polished brass flanges or brackets, and to the railing with polished brass Tis, of suitable design. A stairway in keeping with the gallery, with similar railing, enables persons to ascend to the gallery. A gallery and stairs will also be constructed to allow access to the pumps; the lower gallery being 14 ft. above the floor of the pit, the upper gallery to be 21 ft. above the floor of pit; the gallery and stairs and floor of gallery will be made of cast iron and grated. The railing and supports of the stairs and gallery will be wrought iron. All the material used in the construction of the machinery was specified to be of the very best, the iron castings to be sound and perfect, "and made of iron that will sustain a ten-le strain of 25,000 pounds to the square inch, the connecting rode, cam rods, wrists, stretchers, and bolts to be made of the machinery was specified to be of elpht parts new copper and one of new tin—three the engine to be either turned or planed, and polished. All the flanges of the air chambers polished. All the flanges of the air chambers, valve chambers, pump barrels, and glands of pump, to be either turned or planed, and the upper side of the bed plate to be neatly planed, and the cylinder heads and caps of valves to be ground so as to make a steam joint. The steam cylinders to be coated 2 in thick with non conducting cement, said cement to be covered with polished walnut staves; staves to be 2 in thick and 3 in. wide, and secured by polished brass bands and serews. The admission side pipe to be coated similar to the cylinder with non-conducting cement, and both the admission and exhaust side pipes o be covered with Russia iron, to be secured with brass bands and serews. All of the machinery, gallery and stairs located in the pump well, and gallery and stairs located in the pump well, an below the floor of the engine house, to receive below the moor of the engine house, to receive at least three coats of paint, and to be neatly decorated; and all of the machinery which works above the floor of the engine house not turned or polished to receive four coats of best paint, the moldings and panels to be banded and bronzed or handsomely decorated."

### Northwestern Furnace Notes.

The Marquette ... The Datata Furnase is fluishes, but has no

kilns, and no money to buy woo!. It is reported that dis cuti as exist samong the direc- first-class returns to those working them, pertain. Mr. McCallum, the superintendent, as resigne', and will return to Marquette.

The G recuwood Farunce has a large quantity of pig metal on hand-some say as much as 10,000 tons-and keeps on blowing the same as if there was a ready market for the product. States, and a Commissioner to the Paris Ex-The Clarksburgh Furnace, owned by the same company, is also in blast, with a large accumu

lation of iron on hand and unsold, Of the Northern Wisconsin furnaces have the following advices: At Fond du Lac Mr. J. C. L. Mey & will have his furnace ready for operation by the first of September: in fact, the furnee proper is about completed. Kilns du Lac, on the Wolf and Upper Fox rivers, and enough coal will be taken to the furnace in scows during the summer to run the furnace during the winter Mr. Mover, in addition to his furnace enterprise, cons and operates a large saw mill near the furnace plant, and will utilize the sabs the efrom f r fuel. The fur nace will have all the modern improvements. having been partly designed and built by J. C. Cameron, the finishing touches being added under the superintendence of J. M. White, 'ate of the Menominee Furnace. Mr. M. contem plates working up the greater portion of his pig iron at home, into suc'i merchantable shapes as car axles, boiler plate, etc. Whether he will be prepared to do this from the be-

The Menominee Furnace, which was blown in on the lat inst., is doing remarkable work, having made 150 tons the lirst week, and 175 the second, with all soft wood coal.

The five last named furnaces are making about 500 tons per week, and all have on hand large stocks of coal and wood, with ordinary supplies of ore. All the owners, however, are complaining of the extreme dullness of the market, and low prices offered for pig metal, and low prices are not their furnaces on starvation prices.

The Eunising is again making iron, having titrued out 23 tons the fourth day after blowing in.

ting in.

No. 2 Bay Furnace stack, at Onota, is doing spleudid work, making about 28 tons per day with an average consumption of 90 bushels of coal to the ton. When the stack last went out with an average consumption of w busiess of coal to the ton. When the stack last went out of blast a salamander was left on the hearth, an unsuccessful attempt having been made to run or all soft hematite ore, and some trouble was apprehended on starting up a week ago. By careful management, however, the salamander was melted out in a day or two, and the stack, which never before made over 23 tons in 24 hours, is now making iron at the rate of 200 tors per week. So much for the bell and hopper, and a hot bla-t of sufficient capacity. The ore used, is nearly all New York, with a small proportion of Republic, giving a yield of 67 per cent, in the furnace. No. I will go mto blast in about two weeks, with every assurance of doing equally as well. A coal shed, with a capacity for 150,000 bushels, is nearly completed, and the premises generally give evidence of rare executive ability in the management.

#### English Capital for the Black Valley. Bedford County, Pa.

The Iron and Coal Trades Review, of June 1st, ublishes the following respecting the reputed movement of English capital in iron and coal property of the Black Valley :

We are informal that a company of English apital sts is being privately organized for the purpose of acquiring and developing extensive iron ore and coal propert'es, situated in Bedford county, P.a., and in Maryland. The property has beef thoroughly inspected and re ported upo 1 by Mr. Ephraim A. Jones, of the Londonderry Iron Works, Nova Scotia, and of Middlesbrough-on-Tees, England, and from his communication we give below a few particulars. Dr. J. P. Kimball, F. G. S., New York, also furnishes an elaborate and highly satisfactory description of the property, with full par ticulars as to the quality of the ore, its extent &c., and judging from these, which have been submitted to us, it would appear that this locality is in every way well placed for making iron cheaply, while, if we look at the great future which is in store for the iron trade of the United Stales, it is not surprising that there is at present an evident desire on the part of many per one connected with the British iron trade to embark a portion of their capital in the industries carried on in that part of the world. The immense deposits which are known to exist in the States only require development to yield ors and stockholders, and that the time when though a great deal has been done in the way the furnace will go into blast is vague and un- of opening out mines of late, the demand for iron ore and pig iron ordinarily so much exceeds the power of supply, that much more remains to be done before the mineral wealth of the country is fully utilized. Mr. Hewitt, one of the best-known ironmasters of the United hibition of 1867, estimates that the production of pig iron in the States will, at the end of the present century, amount to from ten to fifteen millions of tons, as compared with two millions in 1873. The company under notice intend to erect blast furnaces on the property, and thus they will be able to secure a greater profit than would result from the simple sale of the ore. are being located at some distance from Fond Mr. E. A. Jones, in his report, says that the Black Valley is the local name for a valley in Bedford county, Pa, and the fossil ore found there is on the flank of the Tussey Mountain. bout one-third of the way up, thus being easy o work. The Kem 'e Coal and Iron Company have raised the ores on the adjuning property since 1869, and have smelted them regularly in their furnaces. They find the sear a continuous. varying in thickness from one foot to six feet, averaging from two feet six inches to three feet. ematite, while the under portion is brown, with some admixture of ochrev hydrated oxide. There is every rea-on to believe that this vein is the same as is seen on the surface in the Black Valley. The well wide: the lower flange is finished 31/2 in. thick and 4 in. wide, with brackets; the stuffing box is bored 9 in. deep and 42/2 in. diameter. use no intention of making pig iron for market, the ore in the immediate neighborhood. Another immediate neighborhood. Another immediate neighborhood.

but to carry the manufacture forward to such an extent as will give him all the profits to be derived from its manipulation.

The Appleton furnaces both have stacks as a possible for feet. One is idle at present, and the cother is blowing. Some trouble was experienced lately by a break in the dam from which the water furnishing the power is obtained, but she is now running successfully again, so far as the quantity and quality of in is concerned. The other stack will be blown in as soon as the state of the iron market will warrant an increased production of metal.

The Fox River Iron Company's two stacks to the West side of the river, at Depere, are both in blast, and making a goodly amount of foundry from. These furnaces are advantage of the river, and the responsibility of coal which the company will acquire.

The Fox River Iron Company's two stacks to meet well warrant an increased production of metal.

The Fox River Iron Company's two stacks to the West side of the river, at Depere, are both in blast, and making a goodly amount of foundry from. These furnaces are advantage of the river, and the responsibility of the river of the river, in the same village, have but one stack in operation—No.

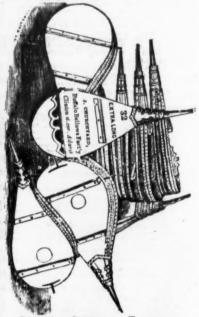
The National Iron Company, whose furnaces are on the East side of the river, in the same village, have but one stack in operation—No.

The National Iron Company, whose furnaces are on the East side of the river, in the same village, have but one stack in operation—No.

The Both one stack in operation—No.

The Green Bay furnace are in constant blast for one year, with a fair prospect of continuing a year longer. The company receive all their ore by water from Escanaba and Marquette. We are informed that they will probably not blow in No. 2 before next fail, if then.

The Green Bay furnace is running amoothly, and now receives its ore by all direct from the manufacture of the contract of the river, in the same of the possibility of the case of the river, in the same of the river, in the same of the river of the river of gin for profit. He sees no reason why four or even more blast furnaces should not at once be put into operation, and has no doubt as to the favorable results.



Buffalo Bellows Factory.

M ERCHANTS WILL FIND IT ADVANtageous to buy from me, as I sell low, and my location enables me to ship at very low rates. No charge for
cartage or other incidental expenses, my quotation being
the whole cost to the purchaser, except the freight wom
buffalo to his location. Please send your orders to

JONEPH CHURCHYARD.

Clinton. cor. Adams St., Buffalo N. Y.

### Get Binders FOR THE IRON AGE.



We have made arrangements to furnish Kocm's PATENT BINDER, which we think altogether the best before the public, to our subscribers at the following very low rates-about the wholesale prices by the

(Cloth Back and Corners, with Morocco Paper Sides Half Cloth. rocco Paper Sides—a good, ser-viceable Binder.) rocco Cloth Back and Sides.) Full Cloth ... ..... 1.75 % Half Roan .....(Roan Back : Cloth Sides.) ... 2.00 .. Half Morocco.... .. (Morocco Back and Corners: Cloth Sides.)

The above are all in black, which is the mo viceable color, with the exception of the Half Morocco, which are put up in a number of handsome shades. The name of the paper 18 stamped in gold on either side, and each Binder is furnished loops by which it can be hung up against the wall as newspaper files are usually disposed of.

The Binders will each hold the twenty-six numbers in the form of a bound volume. They can he nicely inserted in two or three minutes by any boy of ordinary intelligence; and when the covers are full they can be either preserved in that shape as bound volumes of The Iron Age, or they can be emptied and used again. There is no possibility of their getting out of order, unless the cords, which The upper portion of the seam is mainly red are very strong, wear out, when anyone can easily replace them with a piece of fishing line or other suitable string. Su scribers who van should order them at once, so as to keep the paper in good order

On receipt of the price we will ship them, safely

# HENRY DISSTON & SONS,

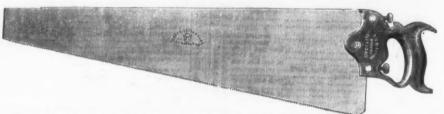
Keystone Saw, Tool, Steel and File Works.

PHILADELPHIA.

Manufacturers of SHEET STEEL, and all Articles made from Sheet Steel.

SAWS OF EVERY DESCRIPTION.

Also, FILES, TOOLS, Etc., and all kinds of Labor Saving Implements for keeping Saws in perfect order.



Hand Saw with adjustable handle. The thumb screws in the handle operate on the butt of the saw blade, and can be so adjusted as to give the blade any desired pitch.

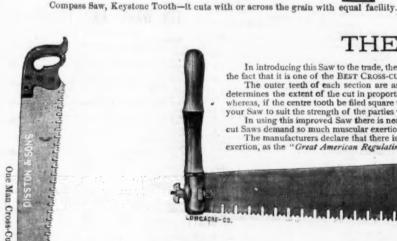


Patent adjustable Gauge Saw for sawing tenons, kerfing, or any work where the cut is required to be of Remove the gauge and use as an definite depth. Will pay for itself in one day. Try it and be convinced. ordinary saw.



Hack Saw. The

will be readily appreciated by mechanics.



### THE GREAT AMERICAN.

In introducing this Saw to the trade, the manufacturers would remark that it has been subject to the most severe tests, which have determined the fact that it is one of the BEST CROSS-CUT SAWS ever offered to the public. The most important peculiarities of this Saw are as follows:—
The outer teeth of each section are as sharp and effective cutting teeth as the teeth of a Rip Saw, while the middle or regulating tooth determines the extent of the cut in proportion to the bevel of said tooth. The more you bevel the centre tooth, the faster the Saw cuts, whereas, if the centre tooth be filed square the Saw takes less hold on your log, and requires less muscle to drive it. Thus you can regulate

your Saw to suit the strength of the parties working it.

In using this improved Saw there is none of that "tearing of the wood, undue friction and drag," which in many other improved Crosscut Saws demand so much muscular exertion without a commensurate result.

The manufacturers declare that there is no Cross-cut Saw in the market by which so much work can be done in ten hours, with so little exertion, as the "Great American Regulating Cross-cut."



THE LUMBERMAN

Is greatly preferred in some sections of the country, and can be easily kept in order if filed according to directions, when so many of the fast-cutting Saws of the present day must lose their shape and cannot be kept in order.

In filing this Saw, the round edge mill file should be used, and by pressing a little downward as well as sideways you keep the tooth at all times in the same shape it leaves the factory. Attached to the Lumberman and Climax Saws will be found our new patent Cross-cut handle, which is at once the most simple and complete detachable handle now in use. Place the end of the saw blade into the slot in the casting, then drop the pin or rivet into its position, and a few turns of the wing nut secures the handle immovably to the Saw. Although the pin is quite loose when the handle is detached from the Saw, it is by a simple contrivance secured in its place, ready for use,—an advantage which will be fully appreciated by all-lumbermen. We guarantee this handle to be superior to any in use.

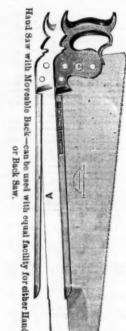


THE CLIMAX.

The construction of the Climax is similar to the Lumberman, the only difference being the introduction of a cleaner tooth between every two sections of the Lumberman tooth, which in some parts of the country is deemed to be an advantage.

It will be observed that the spaces between the points are exactly alike (a principle which we have endeavored to preserve in the manufacture of all our Saws), because it makes the cut clean and even, leaving ample room for dust. This saw can also be easily kept in perfect order, and the tooth will retain its original shape by the proper use of the file, as directed in the article on the Lumberman. A Gauge for reducing the length of cleaner teeth will accompany each Saw.

DISSTON'S CLIMAX CROSS CUT



### THE NONPAREIL.

The Nonpareil, of which the accompanying cut is a representation, is composed of sections of four cutting teeth, each section intersected by a cleaner tooth. It will be observed that the cavities on each side of the cleaner teeth are much larger and deeper than those of the cutting teeth, serving as a receptacle or chamber for dust, and effectually freeing the Saw during the operation of cutting. The cleaner teeth should always be kept shorter or lower than the cutting tooth. (The Gauge, as shown below, is made expressly for this purpose, and by its use the cleaner teeth of any Saw can be regulated and kept of exact length.)

This Saw has given unbounded satisfaction wherever it has been used, and we are constantly receiving orders for the same; in fact, in some sections, and for sawing soft lumber, it is preferred to any other Saw.

DISSTON'S NONPAREIL SAW 

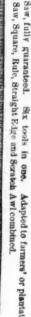


The cleaning teeth of all saws should be somewhat shorter than the cutting teeth, and, although shortened, they should be of uniform length throughout. The inner edge of the Gauge rests on the points of the cutting teeth, the cleaning teeth projecting through the opening in centre of Gauge. Reduce the projecting points, by means of a file, until arrested by the edges of the Gauge, which is made of hardened steel. Thus tooth after tooth can be rapidly and correctly reduced to an even ength by any unskilled operator









# New York Wholesale Prices, June 24, 1874.

Clips, Axle,				
Norway or Beat	Yerks & Plum Shingling, N	os. 128	Sandvary Tool Co., 1st quality	Toe Calks % b 18c net
Superior	dis 50 % Claw,dis 43&6 % Lathing,	123	Ohio Tool Co., 1st qualitydis 30 %	Tobacce Cutters.  Champion dis 20&10 % Peck, Stow & Wilcox. dis 10 % Tinners' Tools and Machines. list not
Anvila	Simmon's Shingling, N	08.0123# doz \$7 90 8 00 8 50 9 00	Ownsed Tool Co., lat quality	Tinners' Tools and Machines, P. S. & W. list not
Solid Cast Berel. P p gewinds; over 250 hs 12% c gold Armitate. P n gewinds; over 250 hs 12% c gold 12 woodes Handled. Wilkings a p n gold 11% c on Hods.—Smith, burns & O. Con Hods.—Smith, burns & O. Con Hods.—Smith, burns & O.	W doz, 1 00 @ 2 00 Lathing,	1 2 3 W doz 8 00 8 50 9 00 E	Bailey's Patent Adjustable	Traps   dis 20 %
Eagle Au fa, # h lit currency dis 15 @ 10.885   Japannied 89:00 973 10   Galvanized 13:00 14:59 15   Months of the currency distribution 1	50 12:00 13:50 per doz	78 # doz 20 00 22 00 78 # doz	Auburn Tool Co.'sdis 25 %	Peck, Stow & Wilcox
Curn Tab Morning Glory No. 15 Lightning Hudson's \$9.50 \( \pi\) doz Japanned \$12.50	16 17 Shingling, N	18	Citto Tool Co	Lothrop's Brick and Plasteringdis 10 %
	19:50 18:50 per doz Lathing. 19:50 21:00 "Lathing. J. P. Verree &	1 2 3 9 doz 9 00 9 50 10 00 P 1 2 3 9 doz 8 00 8 50 9 00 Co dis 5 5	Pliers. Sandusky Tool Co	Section of a specific visit vi
Saleton Faring, Coring and Silving. 815 90 dis 5 g Cockeves. Carlmax Secretary Coring and Silving. 9 00 dis 5 g Cockeves. Carlmax Secretary Coring and Silving. 9 00 dis 5 g Cockeves. Carlmax Secretary Coring and Silving. 9 00 dis 5 g Cockeves. Carlman Secretary Cockeves. 11 00 @ 11 50 dis 5 g Cockeves. Co	Shingling, N	123. \$\psi \dot 8  of \$2 \text{ of \$3	PHers. Button's Patent. dis 33½ % 5-P'lumbs and Leyels. dis 60±10 % Chapin's. dis 60±10 % Standard Reic Co.'s New Aquistable. dis 60±10 % Standard Reic and Level Co. dis 60±10 %	Rose's Brick. dis 5 % Brades' Brick gold, net Worrall's Brick and Plastering. dis 15 %
Climax S Deer. 9 00 dis 5 8 Brass Racking. Bay State : Peach Parer. 911 00 @ 11 50 Brass Racking. Lock and Globe.		128 # doz 7 25 8 00 8 75 8	Chapin's. Glassics of the Co.'s New Adjustable	Garden
Peach St. Maer and Halver	dis 15 s Claw,	1 2 3	l'umpse	Vineu.
Lightning 11 00 @ 11 50 Peach St baer and Haiver 10 0 Auger sand Hits 10 0 dis 15 @ 30 5 Russell a banings dis 10 10 5 Douglassi Mg. Co. Extra 2 Franch Steel	89-50, \$10-50-din 20 \$ Wrought Stray	and T	Cucnmber (Burilingham & Purdy)—	30 to 100 lbs
Pesch St. ber and Halver. 700 Auger sa and Bla. 2615 6 305 Suell Mf. CO. 261 5 6 305 Suell Mf. CO. 5Xtra. 6 10 10 10 10 10 10 10 10 10 10 10 10 10	dis 25 % Providence Pla	d Strap [8, 10, 12 in .7%c]net	Douglas Cisteru, etc	Trenton Vises, Solid Box   16c
Cushm: n's Expanding Hollow Augersdis 30 % Enterprise Mfg. Co	dis 10 % Screw Hook at	(8, 10, 12 in .7%c)net d Strap 14 to 36 in .5%cnet Hook 12 in .9c dis 10 %	Pipe, 8c. per ft.; Coupling, 20c. per ft.	39 to 160 lbs
Gouge Lip Augers and Bits. dis 30x10 % Compasses and Dividers.   1	dis 35 \$	d Eye	Rukes   Gis 80   Rukes   Gis 80   Rukes   Rukes   Rukes   Gis 80   Rukes   R	Backus & Unfon, Parallel
Andrive Bits. di 20x10 Peck Stow & Wilcox.	dla 25 5	(% in. askc)	Malleabledis 30 %	Fisher & Norris' Double Screw Paralleldis 15 @ 15&5 % Trenton Paralleldis 15 %
Expansive Bra.  Clark's Expansive Bits.  Clark's Expansive Bra.  Clark's	dis 15 @ 20 % Solid Shank, C	S. \$\$\psi\$ doz \$\psi\$ 00\text{\$\psi\$ doz \$\psi\$ doz \$\psi\$ 00\text{\$\psi\$ doz \$\psi\$ 00\text{\$\psi\$ doz \$\psi\$ 00\text{\$\psi\$ doz \$\psi\$ doz \$\p	Malleable	Parker's.   dis 20 %
Shepardson Double Cut Mits. dh 20 Swan & Brombacher.	dis 15 @ 20 g Riveted Eye	dis 20 % H		Pugsley & Chapman—Canal
Expansive Hfs. di 38210 g Andriwe Bits. dis 35 g Giark a Expansive Bits. dis 15 g Giark a Expansive Bits. dis 15 g First dis dis 15 g Stepardson's Double Cut Bits dis 25 g Grisword's Patent Augers dis 50x g Grisword's Patent Cut Bits dis 50x g Grine Bits dis 50x g Grine Bits dis 50x g Grine Bits.	Scovill			W beel Heads.  Brass Bashed
Alager Bits. dis 30&1   Phineas Smith.   Long Augers   Long Augers   Long Augers   Long Augers   Phineas Smith.   Long Augers	Hooks.	dis 50 % II	Kivets. dis 25 g	Revised list
Bonney's Parent Hollow	Bench-Skinne	dis 50 g dis 60 e b) 5 li  "1" ber doz \$5 0 0, dis 20 g dis 60 e b) 5 li  "2" ber doz \$5 0, dis 20 g d	In bulk list net Copper Rivets and Burrs new list dis 25 % Rods.	Wire. Bright and Annealed
\$46 per doz—dis 25   Crucibles.   Crucibles.   Crucibles.   Sobles Mfg. Co. C. 8. Cut /augers.   dis 30&10   Crucibles.   Cut of the comba.   Crucibles.   Cut of the comba.   Cut of th	Bench—Westo	1's No. 1, \$8.50; No. 2, \$7.00 per doz net Si	American Patentdis 30 %	19 62 20 di 8 de 6 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5
6 in. \$28 60 : 9 in. \$25 per doz	ei doz, \$900-dis 15%   Wardrobe, Jap	new list dis 60&10 % new list dis 60&10 % B	Rollers.	Galvanized, Nos. 7 to 18
A News Weltzer Mfg. Co.	dis 20 % Wrought Stapl	es and Hooks and Staplesdis 60, 10m10 % and Eyes, revised listdis 70&5 % M	Sarn Door. Peymed met dis outlook to the thing the transfer of the thing the transfer of the t	Cast Steel
ident's \$\psi \text{dor \$15 \text{ Go at \$5 \text{ Silve.}}\$ \text{ Vary.}  Glass		dis 2   5	" Lath Yarn, Fine Tard. % and 5-16 inch @ 3 171/40	Gaivanized Telegraph, Nos. 8 and 9 W B 9c 6 16c
Hunt's		Brasedie 55 %	Manila	Ann ealed Fence, Nos. 8 and 9
Morris' doz 12 50 @ 13 50 Emboss & Gilt.	dis 15 % Putnam's.	5 6 7 8 9 10		Fence Staples B 5% @ 9%
Red Jacket   \$\phi\$ doz   12 00 @ 12 50   Leather   \$\phi\$ or   \$\phi\$ or	per doz—dis 40&10 % In lots 2000 lb	. dis. 5 %.	ELLIUM.	Amorbon Admetable
Volume   Tool Co., "Peeriess"   Wed oz 18 00 @ 14 50   Torrey's P.   Volume   Torrey's P.   Volume   Torrey's P.   Volume   Vol	# 6'00 No	30c 27c 25c 24c 28c 28c H	Iubbard & Curtiss Mfg. Co	Collins & Co.'s dis 40 %
John Leverett's		nedStc 28c 26c 25c 31c 25c 8t 1bs. 5 % discount.	tandard Rule Co.'s Boxwooddis 6.4:10 %	Diagonal   dis 20 %
Sonn Leverett   Sonn	# doz 5 00 @ 7 00 No	29c 36c 24c 23c 23c 21c		Lindsay's Patert. dis 25 %
Coalilou's   new list dis 15 %   Nexes France.   1 Gross lots.   1 Gross lots.   S Gross lots.   1 Gross lots.	# doz 6 50 @ 900 dis 10 % In lots of 500 dis 20 % American Pri	D8-4 CH8- 5 %-	ad Iron, Nickel Stand attached	Bernis & Call's Patent Combination dis 20%5
Plated new list dis 50&5 % Bradley's.	dis 25 %	seed. 5 6 7 8 9 10 Bd  22c 20c 20c 20c 20c 20c 20c 20c 20c 20c	Sad Irons.         ♥ B 4½c net           sol Iron, Nickel Stand attached.         ♥ B 5c           sand Paper—dis 7½ @ 10 5         \$ 25 9c           sand Paper—dis 7½ @ 10 5         \$ 25 9c           seader & Adamson's (Fint) 00 to 1½         \$ 25 9c           smorted.         4 25           sar         \$ 7 8c           sar         \$ 7 8c	Wringers
Strolds unaw blat dis Sues s Inversoll's Ratchet	Perkins Finis	Aled (ready to drive).  8 9 10 St  81c 28c 26c 25c 24c 25c Er	Monted   4 25	
H with Brass die 018 10 @ 658 10 C   Whitney's Eatchet	dis 20 % In lots of 1000each \$3 25 net Buffalc Forge	lbs. dis 5 %.	owdin Mfg. Co	Monitor
Write Metal. dis 50&10 % Blacksmiths'. Swiss. dis 50&10 % Drill Chucks. eac	h 10-00—dia 25 @ 30 %	29c 26c 25c 24c 28c	" 2,2%, 8 and assorted	TIN WARE AND TRIMMINGS.
Abbe's dis 10ki0 t Drug Mills.  Testor's Percent theory per	Globe (Points	d and Pointed). 7 8 9 10 Ci	lark's, Nos. 1 and 3dis 3836 %	STAMPED TIN WARE.
Write Metal dis 50-6-10 s SW 180 dis 10-6-10 s Ab Do 2 dis 10-6-10 dis 10-6-10 s Ab Do 2 dis 10-6-10 d	doz net \$8°25 @ 8°50 In lots of 1000	lbs 5 % discount.	erguson's	
Hart Mfg. Co., Crank and Pull dis 50-20 S National National	doz \$4.50—dis 10 % No		Sash Weights.	Wash Basins, Handled, Plain Stamped.
Western	Extra In lots of 1000	lbs., dis 5 %. L, pointed, ready to drive).	G	Per doz. \$400 450 570 Wash Basins, with Feet, Plain Stamped
Dodge's Genuine Kestucky	9 % 8c No	33c 30c 28c 27c 28c 25c	Saw Rodsdis 10%	Inch
Call. dis 155  Call. September 2 dis 202  Call. September 2 dis 202  Call. September 2 dis 202  Call. Call. Call September 2 dis 202  Call. Ca	dis 20 @ 25 % In lots of 500	bs., 5 % discount.  lbs 7% % discount.  Horse Nails.	Saws. pear & Jackson's\$4 50 to £ gold ohn Spear\$8 60 to £ gold	The doz. Stanger of St
Call. dis 15   Enameled and Tinned Ware. Estimates dis 25   Enameled and Tinned Ware. Estimates dis 25   Enameled and Tinned Ware. Estimates dis 25   Enameled and Tinned Ware. Enameled and Tinned Ware	No	Horse Natis. 6 7 8 9 10 As	ohn Spear	
Bland Bollowsdis 10 g Brass Threat	UB.	1ba., dia 5 %.	Inserted Tooth	Inch         .10         10%         11 %           Per doz.         \$1.70         210         2-50           Inch Shallow         .10         11
Silind Fasteners. P gross \$14.00 Cork Lined, Wood Washburg's Patent. P gross 14.00 Fenn's. Cork Stops	dis 50 % Star Brand	₩ 16c Di	dis 20 %   dis 20 %   dis 20 %   dis 20 %   dis 25 %	Wash Basins, Retinued
Van Saud's \$ gross \$14.00 Westburus Fatent. \$ gross \$14.00 Merriman's.  Bi In 4 Staples.  Boardman's Patent, \$ in. and larger. \$ 5.7 c  Bolts.  Carriage and Tire, Ætna Nut Co dis 60 c  Blove. Ætna Nut Co dis 60 c  Cast Iron Barrel. \$ new list dis 60 c f  Wrought Iron Func. \$ new list dis 60 c f  Wrought Iron Func. \$ new list dis 60 c f  Carriage and Tire, Common. dis 60 c f  Carriage and Tire, Common. dis 60 c f  Carriage and Tire, Common. \$ 50 c f  English \$ c f  English	dis 10 10 8 Burden	S. Presiden Dattern B keg, \$5 85	188500   Circular	Per dos.   \$1.55   1.450   1
Bolts. Carriage and Tire, Ætna Nut Co. dis 60 f Feiler, Plates.	dia 40 % Male Shoes	Co., Perkins Pattern	W. Peace's Circulars dis 10 % Other kfilds dis 10 %	Covers.
Stove. Ætna Nat Co	currency- 10 5 Ice Picas.	₩ gross \$12 00 @ \$16 00 net	W. Peagus Unculars Other kiffus. Sm. McNiece's hand, Cross Cut and Circular Cular M. McNiece's Patent Pole Pruning Saw M. dis 10 5 M. McNeise's Patent Pole Pruning Saw M. dis 10 5 M. heft	Per gross 36225 3:00 4:00 4:50 5:75 7:75 8:75 9:95 18:40
Cast fron Barrel, Shitter, acc. new list dis 50.10 % Newbor ad's.  Wrought fron Barrel new list dis 50.210 % Newbor ad's.  Square new list dis 50.210 % Newbor ad's.  Wrought fron Flush dis 150 de 10 % Newbor ad's.  Carriage and fire, Common dis 40.210 % Stubs.  Star, Philadelphia dis 50 de 50.210 % Stubs.  Star, Philadelphia dis 50 de 50.210 % Stubs.	5 25 to . sold White's	per doz \$2 50 dts 10 % per doz 1 60 dts 10 % per doz 3 00 net		Coffee Pot
Wronght Iron Figs. dis 10 5 Carriage and Tire, Common dis 70x10&5 5 Stube' 8 Norway Iron 50x10 5 Butch er's 8	Westles.	10	Saw Sets.	Pot
Ster Dhiladalahia dia 80 @ 808 10 8 Walter Spenger & Co 's " Diamond "	5 25 to £ gold in lots of 500 m	9 55c net H  9 5 50c net N  1	aah's dis 20 % emis dis 10 % fixen's Genuine dis 25 %	Per gross
Eagle, Philadelphia.  Panadelpara Pattern, P. S. & W. dis 50 d 50 & 10 & Spear & Jackspan's Hargreaves, Smith & Co.'s discount of the Co.'s discount of th	5 00 to £ gold nives. 5 25 to £ gold A Shoe	Madaworth's'	iken's Genuine dis 10 % onthins' Genuine dis 10 % onthins' par doz \$1 90 net each's dis 15 %	Inch
	5 00 to £ gold Hay the Common		each'sdis 15 %	Per gross
Tartings and 1 no. R. B. & W. old list dis 0.85 % Flow in B. & W. dis 0.8 % Store B. & W. dis 0.8 % Bacton Co. Shared Beals dis 0.8 % Union Nut Co. old list. dis 0.8 % Union Nut Co. old list. dis 0.8 % Odd 1.8 % Odd	4 85 to £ gold Base hat Tight A 75 to £ gold " 1 clic £	idreduced list dis 10% 10 % list	Scales. dis 15 % urnbull's. dis 25 % of the control	Teal Retails Breasts and Covers
Machine	15 @ 5 50 to £ gold Ladles.	dia 20 4 No	owe's dis 256% dis 256% airbanks new list dis 15 @ 20 % owe's dis 15 % dis	
Rellogg's	5 00 to £ gold   Lanterns.	die 10 % Ch	hatillon's Grocers'dis ab a	Pints 1 1 1 Quarts 1 2 21
Bhell Mrg. Co., lace's Paters.	ALCON A STATE OF THE PROPERTY	dis 10 % Sci	cale Beams.	Per doz. 75 '96 1'00 1'15 Fer doz, 1'30 1'56 1'90
Donglas Mfg. Co	Yankee		No. 1 800 to 7200 lbs	Pans. Dish Pans, Tipned
Stove	6 50 De Beque	2 / Contract of the contract o	Table Beams dis 25 g No. 1800 to 7500 lbs 500 west No. 2 50c west Screws merican list of Jan. 1, 1874.	Pans. Dish Pans, Tinned.  5 8 10 140 17 21 25 20 24 25 20 24 25 20 24 25 25 20 24 25 25 20 24 25 25 26 25 26 25 26 25 26 26 26 26 26 26 26 26 26 26 26 26 26
Bow Plus. dis 05 Knox, with tinch Rolls.	5 00 each dis 10 % Chalk	per doz 9 00 net Au	No. 1800 to 7800 lbs	Pans
Bow Plus. dis 05 Knox, with tinch Rolls.	5 00 each dis 10 % Chalk	per doz 9 00 net Au	No. 1800 to 7800 the	Tans.  Dish Fans, Tinned
Bow Plus. dis 05 Knox, with tinch Rolls.	5 00 each dis 10 % Chalk	Common   Per dos 9 00 net   All	No. 1800 to PRO lbs	Tans.  Dish Fans, Tinned
How Kins.   dis 50   Knox, with 4-inch Rolls	5-00 each dis 10 % Chais.  6 00 each dis 10 % Gulynaised Wire 6 00 each net heckes angle.  5 00 each net Cabinet-Eagle.  5 00 each net Cabinet-Gaylord.  4 75 each net Continental.  5 00 each net Continental.  5 00 each net Americas Lock Co 50 each net Americas Lock Co 6 50 each net Sheardson's.	Common   Per dos 9 00 net   All	No. 1 200 to 7300 lbs	Tans.  Dish Fans, Tinned
How Plus	5-00 each dis 10 % Chair.  6-00 each dis 10 % Galvanized Wire (	Common   Per dos 9 00 net   All	No. 1 200 to P300 lbs	Tans.  Dish Fans, Tinned
How Fins.	5-00 each dis 10 5 Galvanised Wire 6 00 each dis 10 5 Galvanised Wire 6 00 each net Cabinet Fagte.  5-00 each net Cabinet Fagte.  5-00 each net Continental.  5-00 each net Continental.  5-00 each net American Lock Co.  5-00 each net Pad.  6-00 each net Vale Lock Co.  5-00 each net Vale Lock Co.	C	No. 1 200 to 7200 lbs	Tans.  Dish Fans, Tinned
How Plus	5-00 each dis 10 % 6 00 each dis 10 % 6 00 each net 6 00 each net 5 00 each net 6 00 each net 6 00 each net 6 00 each net 6 00 each net 7 90 each net 8 00 each net 9 00 each net 9 00 each net 9 00 each net 10 00 each net	Common	No. 1 200 to 7200 lbs	Tans.  Dish Fans, Tinned
How Class	5-00 each dis 10 x Chair. 6 6 00 each dis 10 x 6 00 each net 6 00 each net 5 00 each net 6 00 each net 6 00 each net 7 90 each net 7 90 each net 7 90 each net 6 00 each net 8 00 each net 8 00 each net 8 00 each net 9 00 each net 8 00 each net 9 00 each n	Company   Comp	No. 1 200 to 7200 lbs	Tans.  Dish Fans, Tinned
Bow   Clus	5-00 each dis 10 x Chair. 6 6 00 each dis 10 x 6 00 each net 6 00 each net 5 00 each net 6 00 each net 6 00 each net 7 90 each net 7 90 each net 7 90 each net 6 00 each net 8 00 each net 8 00 each net 8 00 each net 9 00 each net 8 00 each net 9 00 each n	Company   Comp	Cosch or Lag	Part
Bow   Clus	5-00 each dis 10 % 6 6 00 each dis 10 % 6 6 00 each dis 10 % 6 6 00 each net 6 00 each net 7 50 each net 8 50 each net 8 50 each net 9 00 each net	Co	Cosch or Lag	Part
## Novelty	5-00 each dis 10 % 6 6 00 each dis 10 % 6 6 00 each dis 10 % 6 6 00 each net 6 00 each net 7 50 each net 8 50 each net 8 50 each net 9 00 each net	Co	Cosch or Lag	Part
## Bow Plus ## Bracers   Barcers	5-00 each dis 10 % 6 6 00 each dis 10 % 6 6 00 each dis 10 % 6 6 00 each net 6 00 each net 7 50 each net 8 50 each net 8 50 each net 9 00 each net	Co	Cosch or Lag	Part
## Novelty   19   19   19   19   19   19   19   1	5-00 each dis 10 % 6 6 00 each dis 10 % 6 6 00 each dis 10 % 6 6 00 each net 6 00 each net 7 50 each net 8 50 each net 8 50 each net 9 00 each net 1	Color   Colo	Cosch or Lag	Part
## Novelty   19   19   19   19   19   19   19   1	5-00 each dis 10 % 6 00 each dis 10 % 6 00 each net 6 00 each net 7 50 each net 8 00 each net 8 00 each net 9 00 e	10   10   10   10   10   10   10   10	Cosch or Lag	Part
## Nove Plans   Part	5-00 each dis 10 % 6 00 each dis 10 % 6 00 each net 6 00 each net 7 50 each net 8 00 each net 8 00 each net 9 00 e		Cosch or Lag	Paiss   Pais
## Novel 1	5-00 each dis 10 x 6 6 00 each dis 10 x 6 6 00 each dis 10 x 6 6 00 each net 6 00 each net 5 00 each net 6 00 each net 6 00 each net 6 00 each net 6 00 each net 8 00 each net 9 00 each net 13 00 each net 13 00 each net 13 00 each net 14 00 each net 15 0		Cosch or Lag	Paiss   Pais
## Braces   ## All	5-00 each dis 10 % 6 60 each dis 10 % 6 60 each net 6 00 each net 5 00 each net 5 00 each net 6 50 each net 6 50 each net 6 50 each net 6 50 each net 6 00 each net 6 00 each net 6 00 each net 6 00 each net 5 00 each net 6 00 each net 6 00 each net 1 20 each net 2 20 e	10	Cosch or Lag	Paiss   Pais
## Novelty	5-00 each dis 10 % 6 60 each dis 10 % 6 60 each net 6 00 each net 5 00 each net 5 00 each net 6 50 each net 6 50 each net 6 50 each net 6 50 each net 6 00 each net 6 00 each net 6 00 each net 6 00 each net 5 00 each net 6 00 each net 6 00 each net 1 20 each net 2 20 e	10	Cosch or Lag.	Parison   Control   Cont
## Novel 1	5-00 each dis 10 % 6 60 each dis 10 % 6 60 each net 6 500 each net 5 00 each net 6 50 each net 6 6 0 each net 6 50 each net 8 00 each net 9 00 each net 8 00 each net 8 00 each net 9 00	10	Cosch or Lag.	Parison   Control   Cont
## Nove   Patent   Construction   Co	5-00 each dis 10 % 6 60 each dis 10 % 6 60 each net 6 500 each net 6 500 each net 8 500 each net 8 500 each net 8 600 each net	10	Cosch   Cag   Cas   Ca	Park   Color
## How Plus ## Hard	5-00 each dis 10 % 6 60 each dis 10 % 6 60 each net 6 00 each net 5 00 each net 5 00 each net 6 50 each net 6 00 each net 6 00 each net 6 00 each net 5 50 each net 6 00 each net 5 50 each net 6 00 each net 6 00 each net 6 00 each net 8 00 each net 9 00 e	Co	Coach   Fates   Coach   Coac	Paiss   Class   Clas
## How Plass ## dis 50   ## Aprov ## Ap	5-00 each dis 10 % 6 60 each dis 10 % 6 60 each net 6 00 each net 5 00 each net 5 00 each net 6 50 each net 6 00 each net 6 00 each net 6 00 each net 5 50 each net 6 00 each net 5 50 each net 6 00 each net 6 00 each net 6 00 each net 8 00 each net 9 00 e	Co	Coach   Fates   Coach   Coac	Paiss   Pais
## How Plus ## Hard	5-00 each dis 10 % 6 60 each dis 10 % 6 60 each net 6 00 each net 5 00 each net 5 00 each net 6 50 each net 6 00 each net 6 00 each net 6 00 each net 5 50 each net 6 00 each net 5 50 each net 6 00 each net 6 00 each net 6 00 each net 8 00 each net 9 00 e	Co	Coach   Fates   Coach   Coac	Paiss   Class   Clas
## How Plus ## Hard	5-00 each dis 10 % 6 60 each dis 10 % 6 60 each net 6 00 each net 5 00 each net 5 00 each net 6 50 each net 6 00 each net 6 00 each net 6 00 each net 5 50 each net 6 00 each net 5 50 each net 6 00 each net 6 00 each net 6 00 each net 8 00 each net 9 00 e	Co	Coach   Patent Guniet Point	Paiss   Class   Clas
Harders	5-00 each dis 10 % 6 60 each dis 10 % 6 60 each net 6 00 each net 5 00 each net 5 00 each net 6 50 each net 6 60 each net 6 7 60 each net 6 7 60 each net 6 8 00 each net 6 8 00 each net 6 9 0 each net 6 00 each net 8 00 each net 9 00 each net 15 00 per doz net 15 00 each dis 10 % 16 10 % 17 10 % 18 10	Co	Coach   Patent Guniet Point	Paiss   Pais
Harders	5-00 each dis 10 % 6 60 each dis 10 % 6 60 each net 6 00 each net 5 00 each net 5 00 each net 6 50 each net 6 60 each net 6 7 60 each net 6 7 60 each net 6 8 00 each net 6 8 00 each net 6 9 0 each net 6 00 each net 8 00 each net 9 00 each net 15 00 per doz net 15 00 each dis 10 % 16 10 % 17 10 % 18 10	Co	Coach   Patent Guniet Point	Paiss   Pais
Harders	5-00 each dis 10 % 6 60 each dis 10 % 6 60 each net 6 00 each net 5 00 each net 5 00 each net 6 50 each net 6 60 each net 6 7 60 each net 6 7 60 each net 6 8 00 each net 6 8 00 each net 6 9 0 each net 6 00 each net 8 00 each net 9 00 each net 15 00 per doz net 15 00 each dis 10 % 16 10 % 17 10 % 18 10	Co	Coach   Patent Guniet Point	Paiss   Pais
Bay of Parent	5-00 each dis 10 % 6 60 each dis 10 % 6 60 each dis 10 % 6 60 each net 5 00 each net 5 00 each net 6 50 each net 6 6 00 each net 5 50 each net 6 6 00 each net 1 5 50 each net 6 6 00 each net 1 5 50 each net 1 5 00 each net 1 6 00 each net 1 7 0 each net 1 6 00 each net 1 8 00 each net	Co	Coach   Patent Guniet Point	Paiss   Pais
Bay of Parent	5-00 each dis 10 % 6 60 each dis 10 % 6 60 each dis 10 % 6 60 each net 5 00 each net 5 00 each net 6 50 each net 6 6 00 each net 5 50 each net 6 6 00 each net 1 5 50 each net 6 6 00 each net 1 5 50 each net 1 5 00 each net 1 6 00 each net 1 7 0 each net 1 6 00 each net 1 8 00 each net	Co	Coach   Patent Guniet Point	Paiss   Pais
Bay   Plus	5-00 each dis 10 x 6 00 each dis 10 x 6 00 each net 5 00 each net 5 00 each net 5 00 each net 6 00 each net 6 00 each net 6 00 each net 6 00 each net 8 00 each net 9 00 each net 9 00 each net 11 20 20 20 20 20 20 20 20 20 20 20 20 20	Co	Coach   Patent Guniet Point	Paiss   Class   Clas
Bay C   Case   Bay C   Case	5-00 each dis 10 x 6 00 each dis 10 x 6 00 each net 5 00 each net 5 00 each net 5 00 each net 6 00 each net 6 00 each net 6 00 each net 6 00 each net 8 00 each net 9 00 each net 9 00 each net 11 20 20 20 20 20 20 20 20 20 20 20 20 20	Co	Coach   Patent Guniet Point	Paiss   Pais
Beruces	5-00 each dis 10 % 6 60 each dis 10 % 6 60 each net 5 00 each net 5 00 each net 5 00 each net 6 50 each net 6 00 each net 6 00 each net 5 50 each net 5 50 each net 5 50 each net 6 00 each net 5 50 each net 6 00 each net 8 00 each net 8 00 each net 1 5 50 each net 1 5 00 each net 1 6 00 each net 1 6 00 each net 1 7 0 each net 1 6 00 each net 1 8 00 each	Co	Coach   Patent Guniet Point	Paiss   Pais
Barote Patent.  Barote Patent.  Q S. Barotes.  Barote Patent.  Q S. Barotes.  Sportord's Patent.  An dis 4085 S Sportord's Patent.  An dis 4085 S Sportord's Patent.  An dis 4085 S Barote Patent.  Barote P	5-00 each dis 10 x 6 60 each dis 10 x 6 60 each dis 10 x 6 60 each net 5 00 each net 5 00 each net 6 50 each net 8 00 each net 5 50 each net 5 50 each net 5 50 each net 6 00 each net 5 50 each net 6 00 each net 1 5 50 each net 8 00 each net 1 5 50 each net 1 5 00 each net 1 6 00 each net 1 6 00 each net 1 6 00 each net 1 7 00 each net 1 6 00 each net 1 8 0	Co	Coach   Patent Guniet Point	Paiss   Pais
Bruce	5.00 each dis 10 %   6 60 each dis 10 %   6 60 each net   5 00 each net   5 00 each net   5 00 each net   6 00 each net   6 00 each net   6 00 each net   6 00 each net   5 50 each net   6 00 each net   6	Co	Coach   Patent Guniet Point	Paiss   Pais
Bruce	5.00 each dis 10 % 6 60 each dis 10 % 6 60 each dis 10 % 6 60 each net 5 00 each net 5 00 each net 6 50 each net 6 6 00 each net 5 50 each net 6 6 00 each net 5 50 each net 6 6 00 each net 6 00 each net 6 00 each net 8 00 each net 8 00 each net 8 00 each net 15 50 each net 15 50 each net 15 50 each net 15 50 each net 15 60 each net 15 60 each net 15 60 each net 15 75 each net 15 00 each		Coach Patent Gimlet Point. dis 80-10 @ 807 Coach, Patent Gimlet Point. dis 61 8 1 8 18 8 18 8 18 18 18 18 18 18 18 1	Death Pais, Tinned
Bereces  Raroer's Patent.  Saroer's Patent.  Sportor's Patent.  Sporto	5.00 each dis 10 % 6 60 each dis 10 % 6 60 each dis 10 % 6 60 each net 5 00 each net 5 00 each net 6 50 each net 6 6 00 each net 5 50 each net 6 6 00 each net 5 50 each net 6 6 00 each net 6 00 each net 6 00 each net 8 00 each net 8 00 each net 8 00 each net 15 50 each net 15 50 each net 15 50 each net 15 50 each net 15 60 each net 15 60 each net 15 60 each net 15 75 each net 15 00 each		Coach Patent Gimlet Point. dis 80-10 @ 807 Coach, Patent Gimlet Point. dis 61 8 1 8 18 8 18 8 18 18 18 18 18 18 18 1	Dan Pans, Tinned.    10
Bruce   Bruc	5.00 each dis 10 % 6 60 each dis 10 % 6 60 each dis 10 % 6 60 each net 5 00 each net 5 00 each net 6 50 each net 6 6 00 each net 5 50 each net 6 6 00 each net 5 50 each net 6 6 00 each net 6 00 each net 6 00 each net 8 00 each net 8 00 each net 8 00 each net 15 50 each net 15 50 each net 15 50 each net 15 50 each net 15 60 each net 15 60 each net 15 60 each net 15 75 each net 15 00 each		Coach Patent Gimlet Point. dis 80-10 @ 807 Coach, Patent Gimlet Point. dis 61 8 1 8 18 8 18 8 18 18 18 18 18 18 18 1	Paiss   Common   Co

Planisned Oval O. G. Urus	No. 29. 048 0.52 0.58 No. 30 0.50 0.64 0.62 No. 31 0.52 0.56 0.56
Kach \$4'90 5'45 6'80 7'00 7'75 9'25 11'25 12'50 15'50 Phanished Round Urns	No. 39.
Each	No. \$4
Planished Oyster Dish Plates. dls 25 % NOS. 1 2 2	No. 29
Oyster Dish Covers	(Brown & Sharpe's Gauge.)
Tea Pot Handles-P. S. & W	Plain to No. 20, inclusive   9 m   Nos. 21, 22, 23, 26, 2c, advance on List for each No. Nos. 24, 32, 26, 4c, Above No. 26 special rates.   08   18   18   18   18   18   18   18
No. 1, Small 45, 11 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Plain Tube, 1-4 inch. 08  " 3-16" 1.58  " 1-8" 1.58
ers, &c	All Mandel-Drawn Tubes 5c, advance on List. Fancy Tubing 4c, advance on List above Plain. English, Scotch, and Extra Patterns Fancy Tubing to No. 20
No. 35, Medium, 53, 12,00 No. 45, Large, 63, 13,00 Solid Iron, Tin Tipped.	Tubing sawed or cut 2 to 4 ft. long, 2c. advance on List. Add to two cents a half-cent for each additional cut-
No. 10, Small, 44 inches per gross, \$900 No. 15, Medium, 5½ " 950 2vo. 30, Large, 4½ " 1075	ting under two feet. 10 % discount. Brass Doos Rail.—48 cents per lb.—10 % dis. BELT AND HOSE COPPER RIVETS AND BURS.
Bronze - P. S. & W. No. 12. Bronzed and Tin-Tippedper gross, \$18:50	Frice per 3
Saucepan Handles, Or Issue Mattende Fron. dis 20 5 P. S. & W. Japanned. per group 40:50	4 per cent. 12 inch. to No. 26
No. 12. Bronzed and Tin-Tipped	BELT AND HOSE COPPER RIVETS AND BUES.
No. 5, 8 450 No. 6, 9 475	Discount 10 %. German Silver Sheet1 ver 12 inches wide and weighing more than 10 ths
No. 1, 5% inches long per gross, \$1755 No. 2, 6 4 5 475 No. 3, 6% 4 5 475	more than 10 ibs
No. 5, 8	All German Silver thinner than No. 36 is Platers' at 50 cants per pound additional. German Silver Scray, one-third less than net price of 12 inch Market Metal; German Silver Turnings, Filings and
	inch Market Metal; German Silver Turnings, Filings and Chips, half the price of Scrap.  Brown a charp's Gauge is about two numbers finer
MPTAIS.  1RONDety: Bars, 1 to 1% cents per 10. Sheet, Band, Bard.	Inch Market Metal; German Silver Turnings, Filings and Chiga, hait the price of Scrap.  Brown a Snarp's Gauge is about two numbers finer than Study Wire Gauge.  COPPER—DUTY: Fig. Bar and Ingot, 5c.; old copper, 4 cents 4 B; Manufactured (Including all articles of which copper is a component of chief value) 45 ad valorem. All subject to a reduction of 10 per cent. American Ingot.  American Ingot
Hoop and Scroll, 1% to 1% cents per 10. Provided, that none of the above from shall pay a less rate of duty than 85 per cent. Pig. 87 per ton; Polished Sheets, 3	valorem. All subject to a reduction of 10 per cent. American ingot
HEON.—DUTY: Bars, I to 1% cents per 10. Sheef. Band. Hoop and Seroll, 1½ to 1% cents per 10. Provided, tant none of the above Iron shall bay a less rate of duty, than 35 per cent. Fig. 37 per ton; Polished Shaets. 3 cents per lb.; Wrought Scrap, 85 per ton: Cast Scrap, 85 per ton: Cast Scrap, 85 per ton. All subject to a reduction of 10 per cent. Railroad. 70 cents per 100 lbs. Boiler and Plate, 1½ cents per lb BLOGGER 150 per lbs. Boiler and Plate, 1½ cents per lb BLOGGER 150 per lbs.	SHEATHING, SHAZIERS COPPER, BOLTS, &O. Braziers Copper, ordinary sizes, over 16 cz., p. 65c ¥ n Braziers Copper, ordinary sizes, 16 cz. and over 12 cs., per square foot
Centa per lb   Pin Iron AMERICAN   Pton, \$31 00 @ 32 00	12 oz., per square foot
Gray Forge 27 00 @ 28 (0 White and Motiled Scotch.	Circles, 84Inch diameter and over
Costness	Sheathing Copper, over 12 oz. per sq. ft
Am. Renned, at mill B 2-8c @ 3c	Bolt Copper. SSC. No Copper is Sheathing except 14x48 nches, and not to exceed 30 ac. to the square foot.  14x48, by the case. Sc. # sheet.
Mais. Welsh, gold	14x48, less than case
Wrought Scrap, from yard " 37 00 @ 38 00	Other sizes not larger than 30x00
Common iron. % to 2 in round and square	14 and 16 oz. and heavier
Common iron. $\%$ to 2 in round and square. $\%$ to 1 in round and square. $\%$ to 3 in $\%$ x9-16 in $\%$ x9-17 in thick. $\%$ x9-18 to 6 in wide x $\%$ and 1 in thick. $\%$ x9-18 to 6 in wide x $\%$ and 5-16 in thick. $\%$ x9-18 in	exceed 34 os. to the square foot.  IXAS, by the case.  IXAS, by the case, sac.  IXAS, by the cas
1 and 1½ in x % and 5-16.	14 and 16 oz. and heavier. 43c. # 5
# weddsh iron 1 165 00 1 165 0	12 OZ.  LEAD-DUTY: Pig. \$4 per 100 lbs.; old Lead, 1% cent per lb. Pluc and Sheet, 3% cents per lb. All subject to a reduction of 10 per cent.
0 0 3 3 3 and 3 an	DESCRIPTION
1 and 1% x 4 and 5-16.  Large Rounds.  25 t 12%, round and square	Bar dia 10-5 % % % % % Pipe dia 10 \$ 90. Th Lined Pipe dia 10 \$ 10 \$ 10 \$ 10 \$ 10 \$ 10 \$ 10 \$ 10
5% and 4 in 92 50 Rods—% and 11-16, round and square 75 00 \$\frac{1}{2}\$ and 9-16, 77 50	Shot dis 10 %.Drop. 9c. : Buck. 9%c. Solder No. 1, 16 c : No. 2, 15c
1 and 14 x 4 and 3-16.  Large Rounes.  2½ £ 1 2½, round and square.  35 50  35 4 and 35 in.  50 50  50 and 3-16.  50 50  50 50 50  50 5	at 7 cents per lb., or under, 2% cents; over 7 cents, and not above 11, 3 cents per lb.; over 11, 3% cents per lb. and 10% ad val. Hailway Bars 18, cents per lb. End.
8and iron. 1 to 6 in, x 3-16 to No. 12.	way Bars, in part Steel, I cent per lb. All aubject to a reduction of 10 per cent. Provided, that Metal ce- mented, cast or made from Iron by the Bessemer or
Band Iron.  1 to 6 in x 3-16 to No. 12. " 57 50 Horse Shoe Iron.  \$ and \$ 2 \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	shall be classed as Steel.  American Cast Steel.
Ova 9, Hair Ovals and Hair Rounds. 9 ton, \$ 95 00 5 and 11-15 100 00 6 and 11-15 100 00 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6	Spring         10c           Romogeneous         1256           Tire         1256           1856         1856
7-16. " Naii Bous "	Machinery (round and square)   110 @ 11c     File
Best Norway.  Norway Shapes  4 to 2 in. 2 4 to 4	Saw Plate, gang and X cut
Norway Bar % to 2 in. square. Spring Steel 1 to in. wide	Tool, extra fine # 520 @ 21c Tool, extra fine # 62 fc Spring # 13c and upward
1 to   11, wide	Hammer. "i5c, Gun or Homogeneous. "i6c Engilsis Steet,—payable in gold, dis 5 2 cash.
% & 1 x %	Heat Cast # 18c  Extra Cast 19c  Round Machinery, Cast 115c
Plow Steel 6 to 16 wide	Best Double Shear. Biscon Bister, 1st quality 13%c
6 to 16 wide.	German Steel, Best. 10%c do 2d quality. 10%c Chest Coar Steel its coulity. 10%c
1 and 1% x No. 18. 110 00 00 1% to 2 and 1x1 x No. 18 and 14 100 00 Sheet Iron.	2d quality "16c "3d quality "14c "14c "12kc
English. American. English.  Soc. 10 to 20	Square and Hound. 13c  Mill. 13kc Taper to 4 lnch. 17c
50 6540 6540 6540 6540 6540 7040 6540 7040 7040 7040 7040 7040 7040 7040 7	SPELTER-DUTY: in Pigs, Bars and Plates, \$1 50 per 100 lbs.—lcss 10 per cent. Steams, cash. 68 6 7c. gold
Galvanized, 10 to 20, prime	American 71N DUTY: Plates, Sheets, Tagger and Terno, 15 per cent. ad val.; Electro-galvanized Plates, 2 cents per b;
Patent Polished	-all subject to a reduction of 10 per cent. Bars. Blocg and Pigs, free. Banca, subject to daty of 10 per cent. Banca. * 27C., gold
Belgian "17%c Relgian "12c One place Corrugated Sheet from Elbows.	Straits
434 5 5 5 6 7 inch. 82-50 950 per doz.	12x12, 14x70, 12x16, 15x10, 15
1	1 and 16 oz. and heavier
No	For each additional X add
BOLLED AND UN SBEETS. (Brown & Sharp's Gauge.*) For the purchase of 100 nounds and over at one time	1 C 12x12
All Nos. to No. 28, and widths 14 in. and under3sc All Nos. to No. 28, inclusive, and widths over 14 to 20 in.	Prime Char. 2d qual. Coke. I C 14x20 \$10 75 @ 11 00 10 00 @ 10 75 \$ 00 @ 10 00 I X 14x20 18 25
Over 20 in, to 3) in. inclusive	I C 20x2822-50 @ 23:00
	ZINCDETT: Pig or Block, \$1 50 per 100 lbs. Sheet, 2%c. 9 b. All subject to a reduction of 10 per cant. Sheet
Circular shee:s, in diam. from 4 in. to 14 inclusive440	Paper Stock, Old Metals, &c.
30 fn. to 30	Canvas lines
Brass Rods shove No. 0, and under 1 in	White linen rage. No. 1.
46 % more than High Bruss.  Gilding Metals, 76 % b more than High Bruss.  Platers' or Gold Metal Sawed 49c	Colored
in, to % in,, to No. 30, inclusive, ie # B advance, in, to 1 in,, thurser than No. 30, 3c # B advance.	Jute Butts
Glicting Metais, ic v b more than High Brass.  Glaters' or Gold Metal   Sawed 49c    in. to \( \) in., to \( \) in. Bars    in. to \( \) in., to \( \) in. and less thinger than \( \) No. 30, 5c \( \) b advance.  In. and less thinger than \( \) No. 30, 5c \( \) b advance.  Scalp - New Metal.	Waste paper and scraps
RCRAP—NEW HETAL. High Brass Scrap. If cette, net. Lowing. H cette, net. White the cette, net. Turnlup, Flings and Chips, half the price of Scrap.	Oakum junk, No. 1. 5% 65% No. 2. 4 64% Grass rope. 3% 6
Cilding, M cents, net. Turnings, Filings and Chips, half the price of Scrap act BRASS AND COPPER WIRE.	White Count Cuttings, all paper
(Stub's Wire Gauge).  Gild'g and  High Brass, Low Brass. Cop'r	Hard White Shayings, No. 1
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High Brass, Low Brass, Copyr \$0, 36	Commons. Binders' Board Cuttings.
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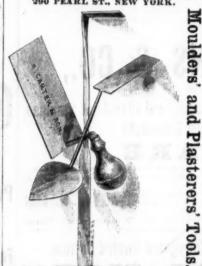
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· 28 · 58	Sheet iron	
	Machinery fron 1% 66 1% Zinc 5%	
\$0.25 \$0.25	Copper	
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. 68	Paints. Oils, etc.	
1 58	Black, lamp-Coach Painters. P 200	
	" lvory Drop, fair	
1 61	Black Paint. in oil	
	" Chinese, dry " in oil	
68c	Brown, Spanish	
15	Carmine, 40. \$12 00 Green, Carome. 55 62 23c	
Vire	Paris good, 30c; best, 40c	
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	Vermontin canks 15c	I
18 Ib	Zinc White, American No. 1 dry.	I
H B	French (Paris)	I
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16	Whale, Crade	I
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	6 x 8 to 10 x 15. \$10.25 \$9.25 \$9.75 \$8.00 11 x 14 to 16 x 24. 12.00 11.00 10.00 9.50	
16c 10c	18 x 22 to 30 x 30	
No.	26 x 28 to 24 x 86. 18°25 16°00 18°25 26 x 36 to 36 x 44. 20°00 18°00 14°50 26 x 46 to 30 x 50. 21°00 19°00 15°55 30 x 50 to 30 x 50 20°00 15°55 25 26 20°00 15°55 25 20°00 15°00	
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e	26 x 26 to 30 x 46	
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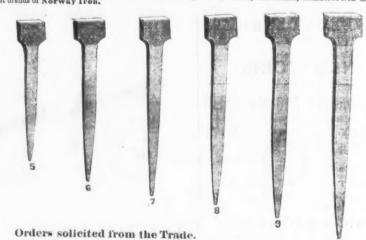


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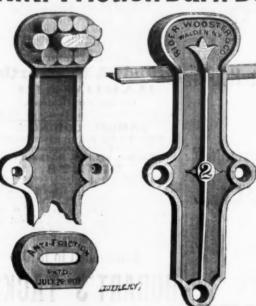
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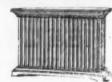
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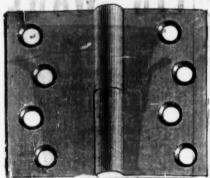
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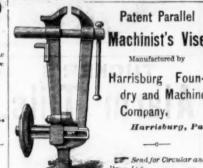
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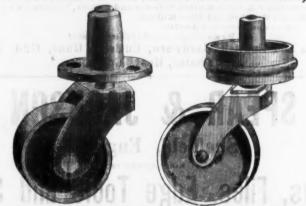
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Wrought Sautter Boltz. dis 46 45 50 5 Gastelly's Phils. Norway iron. finish. points. dis 50 5 Braces.—Barber 8. dis 40 5 Braces.—Barber 8. dis 40 5 Bratholomew's American Ball. dis 100±0 5 Barts.—Cast Fast Joint, Norrow dis 50 5 Batts.—Cast Fast Joint, Norrow dis 50 5 Gast Loose Joint.  "Aoorn, Looke Pin. dis 40±0 60±0 5 "Aorn, Looke Pin. dis 40±0 60±0 5 "Table Huges and Back Flaps. dis 30 5 Narrow dis 50 5 Reversible dis 30 5 Parker's Bling Butts. dis 50 5 Cherrytree dis 50 5 Cherrytree for wood.  Lui & Forrer's dis 50 50 50 50 50 50 50 50 50 50 50 50 50	Bra Bos But C
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Providence.  Monitor. 63 00 Orders for 5 dozen, discount \$1 per dozen. King Wringers (Iron France). per doz \$86 m Orders for 5 dozen, discount \$1 per dozen. King Wringers (Iron France). per doz \$86 m Orders Willis. 500 minon Box and Side. dis 10 @ 15 g Parent Box and Side. dis 10 @ 15 g Cuttlerv.—American Pocket (best). dis 10 @ 15 g Untlerv.—American Pocket (best). dis 20 g Condow Mfg. Co. Manufacturers' net refers. Dr. wing K. Hive.—Hart Mfg. Co. b. dis 50 @ 50 @ 10 g Concave Adjustable Handie. dis 10 @ 15 g Fev Prins. dis 10 @ 15 g Fev Prins. dis 30 g	FII Fr Hi
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the	" Broad, Loose Joint	P
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son 10%	Hinges-Window Bind-   Clark's	
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6-75	Funcel, Black and Galvanized. dis 10 % Funcy and Relmet. dis 10 % Pelace Uoas Vaaes. net Hooks and Staples—Wrought. dis 60 % 10 % Hooks and Staples—Wrought. dis 60 % 10 % Hasps and Staples—Wrought. dis 60 % 10 % Kettles—Brass. # D. 30 % 50 % Kettles—Brass. # D. 30 % 50 % Knives. Orawing—Oval No. 1 dis 60 % 10 % Knives. Orawing—Oval No. 1 dis 60 % 10 % Lanterns "Peerless, No. 1 10 50 % 10 % Lanterns "Peerless, No. 1 % 13 75 dis 10 % Gem. with gitards. # 60 % 28 60 % 11 23 \$13 75 dis 10 % Tuousar 11 35 %	V G
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3 10 1	Case lots	1
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21	Rules—Boxwood and Ivory, Stephens	200
10 21 8 5 9	First Head, Brass. dis 52% Staples—Blind, Boardman & Pat., 1/2 & 1/2 B 376 Species—Bron Troped	1
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10 1	Vises—Parallel, Buffalo. dis 20 Wrenches—Coes' genume dis sixte 10 Cores' Imfration dis sixte 10	200
10 1	Tafts' Pattern. dis 65&10 Ware—French. Tinned and Iron. dis 8 Stamped and Japanned.	
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10 1	Solder No. 1, 190 ; No. 2, 14	000
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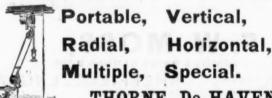
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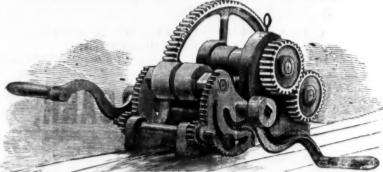
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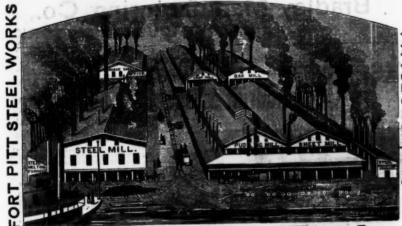
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Shingling	87: 53; 2, \$7:53; 2, \$7:53	
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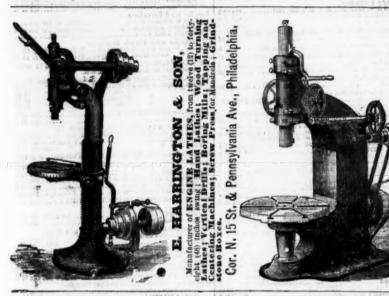
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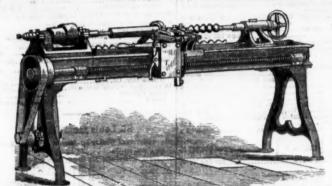


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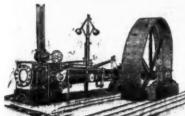




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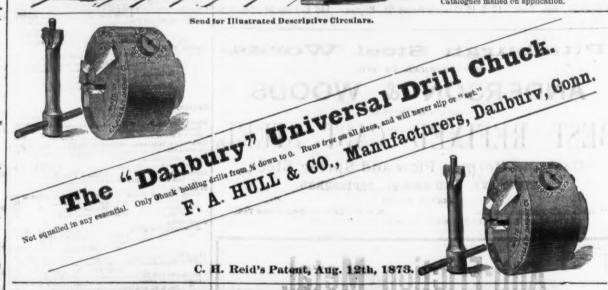
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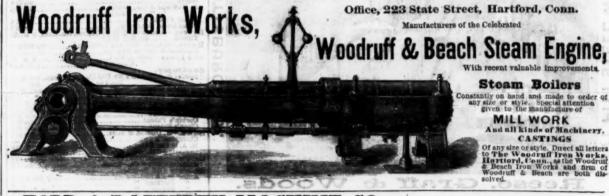


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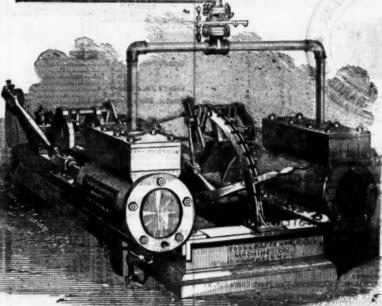


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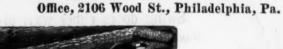
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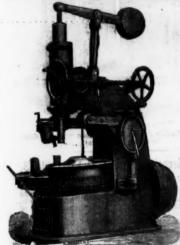






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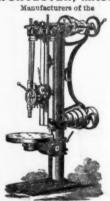
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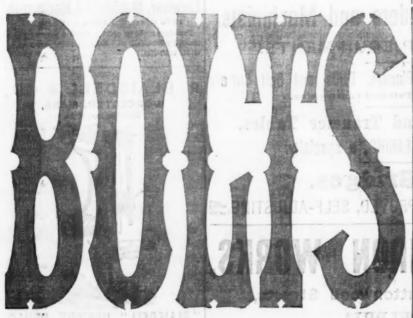
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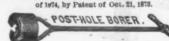
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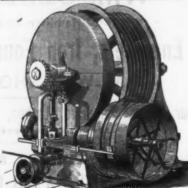
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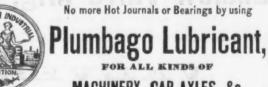
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